FD75
FlexDraper® Combine Header with CA25 Combine Adapter

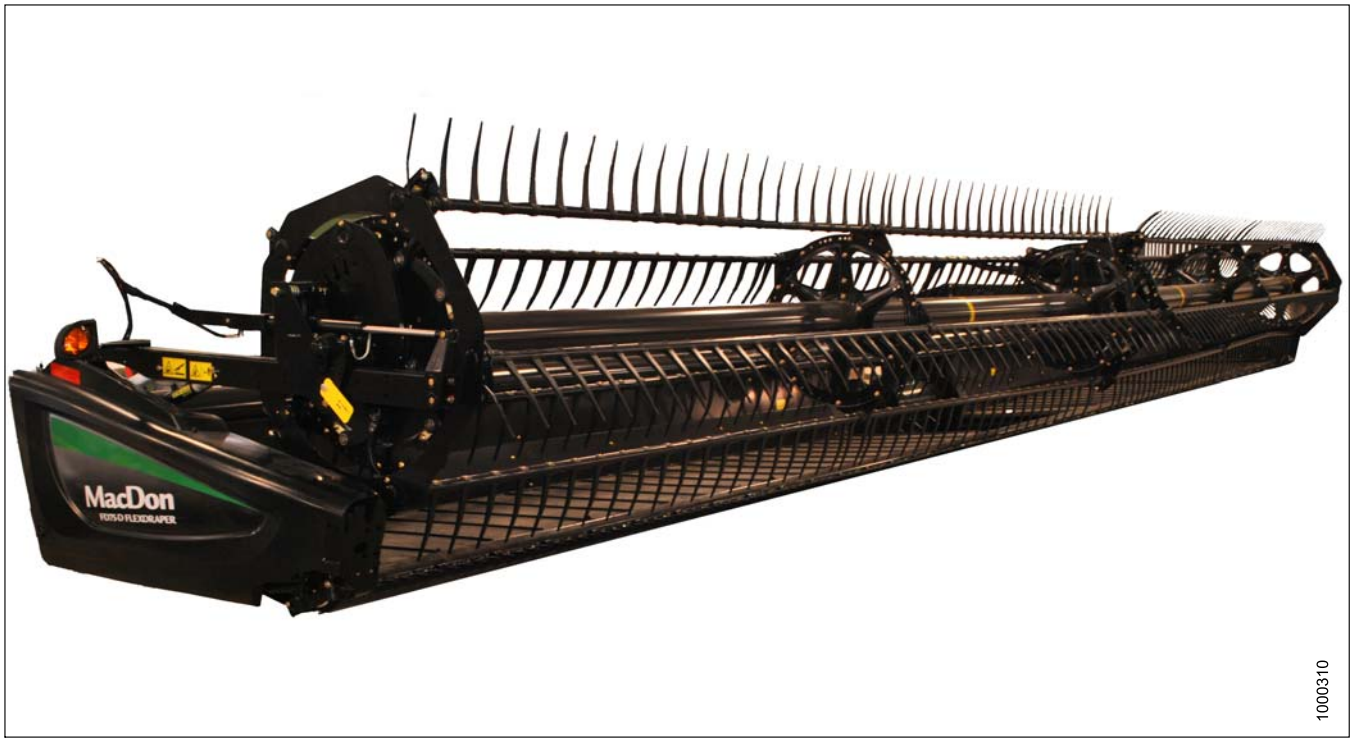
Unloading and Assembly Instructions (North America)

169896 Revision A

Original Instruction

The harvesting specialists worldwide.

FD75 FlexDraper® Header for Combines



Published: June, 2014

Introduction

This instructional manual describes the unloading, setup, and predelivery requirements for the MacDon FD75 FlexDraper® Combine Header with CA25 Combine Adapter.

Use the Table of Contents to guide you to specific areas.

Retain this instruction for future reference.

CAREFULLY READ ALL THE MATERIAL PROVIDED BEFORE ATTEMPTING TO UNLOAD, ASSEMBLE, OR USE THE MACHINE.

NOTE:

Keep your MacDon publications up-to-date. The most current version can be downloaded from our website (*www.macdon.com*) or from our Dealer-only site (*https://portal.macdon.com*) (login required).

List of Revisions

Summary of Change	Location
Repositioned Adjusting Side Draper Tension topic so it follows Checking and Adjusting Draper Seal topic.	*7.12 Adjusting Side Draper Tension, page 117*
Revised Lubrication Points procedures to include the Transport and Stabilizer Wheels.	*7.13.2 Lubrication Points, page 119*
Updated manual part numbers in the Checking Manuals topic.	*7.15 Checking Manuals, page 127*
Restructured the Auto Header Height chapter to improve readability.	*8 Auto Header Height Control, page 129*
Removed Checking and Adjusting Skid Shoe Settings from manual.	—

Introduction i
List of Revisions ii

1 Safety 1
1.1 Signal Words 1
1.2 General Safety 2
1.3 Safety Signs 4

2 Recommended Torques 5
2.1 Torque Specifications 5
2.1.1 SAE Bolt Torque Specifications 5
2.1.2 Metric Bolt Specifications 7
2.1.3 Metric Bolt Specifications Bolting into Cast Aluminum 10
2.1.4 Flare-Type Hydraulic Fittings 10
2.1.5 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable) 12
2.1.6 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable) 14
2.1.7 O-Ring Face Seal (ORFS) Hydraulic Fittings 15

3 Conversion Chart 17

4 Definitions 19

5 Unloading Header and Adapter 21
5.1 Unloading Header and Adapter from Trailer 21
5.2 Lowering Header 23
5.3 Removing Shipping Stands 26

6 Assembling Header and Adapter 29
6.1 Installing Reel Lift Cylinders 29
6.2 Installing Options 36
6.3 Setting Up Combine Adapter 37
6.3.1 Installing Filler Cap 37
6.3.2 Installing Flighting Extensions 39
6.3.3 Removing Stripper Bars 40
6.3.4 Replacing CR Feeder Deflectors 40
6.4 Attaching Header to Combine 42
6.4.1 AGCO Combines 42
Installing Reel Fore-Aft/Header Tilt Selector Valve Switch and Harness 42
Attaching Header to AGCO Combine 45
6.4.2 Case IH Combines 51
Attaching Header to Case IH Combine 51
6.4.3 John Deere Combines 56
Installing Reel Fore-Aft/Header Tilt Switch 56
Attaching Header to John Deere Combine 60
6.4.4 Lexion Combines 63
500 Series: Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness 63
700 Series: Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness 70
Attaching Header to Lexion Combine 74
6.4.5 New Holland Combines 78
Attaching Header to New Holland CR/CX Combine 78
6.5 Attaching Cam Arms 82
6.6 Repositioning Gearbox 84
6.7 Removing Shipping Supports 86
6.8 Positioning Transport Lights 87
6.9 Installing Crop Dividers 88

7 Performing Predelivery Checks 91
7.1 Checking Tire Pressure: Transport and Stabilizer Wheels 91
7.2 Checking Wheel Bolt Torque: Transport and Stabilizer Wheels 92

7.3 Checking Knife Drive Box 93
7.4 Checking Oil Level in Header Drive Gearbox 94
7.5 Checking Oil Level 95
7.6 Checking and Adjusting Knife Drive Belt Tension 96
7.7 Centering Reel 97
7.8 Checking and Adjusting Header Float 98
7.9 Checking and Adjusting Header Wing Balance 102
7.9.1 Checking Wing Balance 102
7.9.2 Adjusting Wing Balance 107
7.10 Measuring and Adjusting Reel Clearance to Cutterbar 111
7.10.1 Measuring Reel Clearance 111
7.10.2 Adjusting Reel Clearance 113
7.11 Checking and Adjusting Draper Seal 115
7.12 Adjusting Side Draper Tension 117
7.13 Lubricating the Header 118
7.13.1 Greasing Procedure 118
7.13.2 Lubrication Points 119
7.14 Checking and Adjusting Endshields 125
7.15 Checking Manuals 127

8 Auto Header Height Control 129
8.1 Auto Header Height Control 129
8.1.1 Height Sensor Output Voltage Range – Combine Requirements 130
Manually Checking Voltage Range 131
Adjusting Voltage Limits 132
8.1.2 AGCO 6 and 7 Series Combines 133
Checking Voltage Range from the Combine Cab (AGCO 6 and 7 Series) 133
Engaging the Auto Header Height System (AGCO 6 Series) 135
Calibrating the Auto Header Height System (AGCO 6 Series) 136
Adjusting the Header Height (AGCO 6 Series) 138
Adjusting the Header Raise/Lower Rate (AGCO 6 Series) 138
Adjusting the Sensitivity of the Auto Header Height (AGCO 6 Series) 139
8.1.3 Case IH 2300/2500 Combines 140
Engaging the Auto Header Height System (Case IH 2300) 140
Calibrating the Auto Header Height System (Case IH 2300/2500) 141
8.1.4 Case IH 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines 142
Checking Voltage Range from the Combine Cab (Case 8010) 142
Checking Voltage Range from the Combine Cab (Case IH 7/8010; 7/8/9120; 7/8/9230) 144
Calibrating the Auto Header Height System (Case 7/8010; 7/8/9120; 7/8/9230) 147
8.1.5 Gleaner R62/R72 Combines 149
System Requirements (Gleaner R62/R75) 149
Calibrating the Auto Header Height System (Gleaner R62/R72) 149
Operation Settings (Gleaner R62/R72 Series) 149
8.1.6 Gleaner R65/R75 Combines 152
Checking Voltage Range from the Combine Cab (Gleaner R65/R75) 152
Engaging the Auto Header Height System (Gleaner R65/R75) 153
Calibrating the Auto Header Height System (Gleaner R65/R75) 154
Turning the Accumulator Off (Gleaner R65/R75) 155
Adjusting the Header Raise/Lower Rate (Gleaner R65/R75) 156
Adjusting Ground Pressure (Gleaner R65/R75) 156
Adjusting the Sensitivity of the Auto Header Height (Gleaner R65/R75) 157
Diagnostics (Gleaner R65/R75) 158
8.1.7 John Deere 50 Series Combines 161
Checking Voltage Range from the Combine Cab (John Deere 50 Series) 161

Calibrating the Auto Header Height System (John Deere 50 Series).....162
8.1.8 John Deere 60 Series Combines.....164
Checking Voltage Range from the Combine Cab (John Deere 60 Series).....164
Calibrating the Auto Header Height System (John Deere 60 Series).....165
Turning the Accumulator Off (John Deere 60 Series).....166
Setting the Sensing Grain Header Height to 50 (John Deere 60 Series).....167
Increasing the Sensitivity of the Auto Header Height (John Deere 60 Series).....168
Adjusting the Threshold for the Drop Rate Valve (John Deere 60 Series).....169
8.1.9 John Deere 70 Series Combines.....170
Checking Voltage Range from the Combine Cab (John Deere 70 Series).....170
Calibrating Feeder House Speed (John Deere 70 Series).....173
Calibrating the Auto Header Height System (John Deere 70 Series).....173
Increasing the Sensitivity of the Auto Header Height (John Deere 70 Series).....174
Adjusting the Manual Header Raise/Lower Rate (John Deere 70 Series).....175
8.1.10 John Deere S Series Combines.....176
Checking Voltage Range from the Combine Cab (John Deere S Series).....176
Calibrating the Auto Header Height System (John Deere S Series).....178
Increasing the Sensitivity of the Auto Header Height (John Deere S Series).....180
Adjusting the Manual Header Raise/Lower Rate (John Deere S Series).....181
Setting Preset Cutting Height (John Deere S Series).....182
8.1.11 Lexion 500 Series Combines.....184
Calibrating the Auto Header Height System (Lexion 500 Series).....184
Setting Cutting Height (Lexion 500 Series).....186
Adjusting the Sensitivity of the Auto Header Height (Lexion 500 Series).....188
Adjusting Auto Reel Speed (Lexion 500 Series).....191
8.1.12 Lexion 700 Series Combines.....194
Calibrating the Auto Header Height System (Lexion 700 Series).....194
Setting Cutting Height (Lexion 700 Series).....196
Adjusting Sensitivity of the Auto Header Height (Lexion 700 Series).....197
Adjusting Auto Reel Speed (Lexion 700 Series).....198
8.1.13 New Holland Combines.....200
Checking Voltage Range from the Combine Cab (New Holland).....200
Configuring Combine (New Holland CR/CX Series).....203
Calibrating the Auto Header Height System (New Holland CR/CX Series).....204
Adjusting Header Raise Rate (New Holland CR/CX Series).....206
Setting the Header Lower Rate to 50 (New Holland CR/CX Series).....207
Setting the Auto Header Height Sensitivity to 200 (New Holland CR/CX Series).....207
8.1.14 Sensor Operation.....208

9 Running Up Header.....211

10 Performing Post Run-Up Adjustments.....215
10.1 Adjusting Knife.....215
10.2 Adjusting Knife Speed.....217
Predelivery Checklist.....219

1 Safety

1.1 Signal Words

Three signal words, DANGER, WARNING, and CAUTION, are used to alert you to hazardous situations. The appropriate signal word for each situation has been selected using the following guidelines:

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death, or serious injury.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death, or serious injury. It may also be used to alert against unsafe practices.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor, or moderate injury. It may be used to alert against unsafe practices.

1.2 General Safety

CAUTION

The following are general farm safety precautions that should be part of your operating procedure for all types of machinery.

Protect yourself

- When assembling, operating, and servicing machinery, wear all the protective clothing and personal safety devices that **COULD** be necessary for the job at hand. Don't take chances.

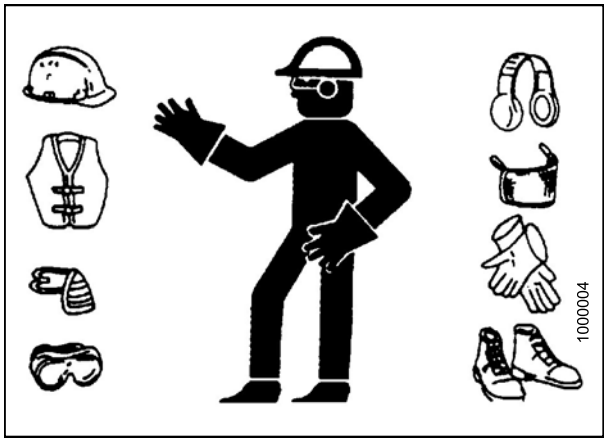


Figure 1.1: Safety Equipment

- You may need:
  - A hard hat
  - Protective footwear with slip resistant soles
  - Protective glasses or goggles
  - Heavy gloves
  - Wet weather gear
  - A respirator or filter mask
  - Hearing protection
    Be aware that exposure to loud noise can cause impairment or loss of hearing. Wearing suitable hearing protection devices such as ear muffs or ear plugs. These will help protect against objectionable or loud noises.

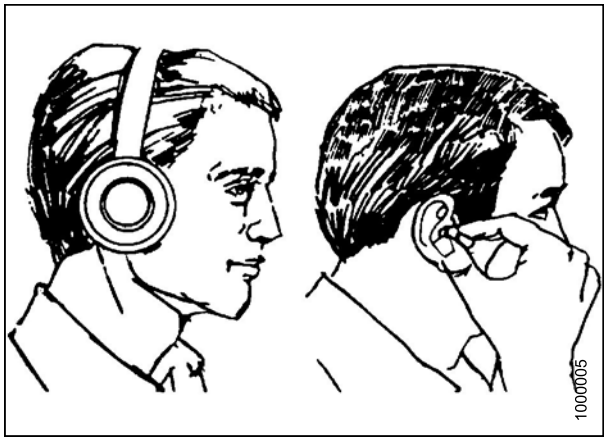


Figure 1.2: Safety Equipment

- Provide a first aid kit for use in case of emergencies.
- Keep a fire extinguisher on the machine. Be sure the fire extinguisher is properly maintained. Be familiar with its proper use.
- Keep young children away from the machinery at all times.
- Be aware that accidents often happen when the Operator is tired or in a hurry to get finished. Take the time to consider the safest way. Never ignore warning signs of fatigue.

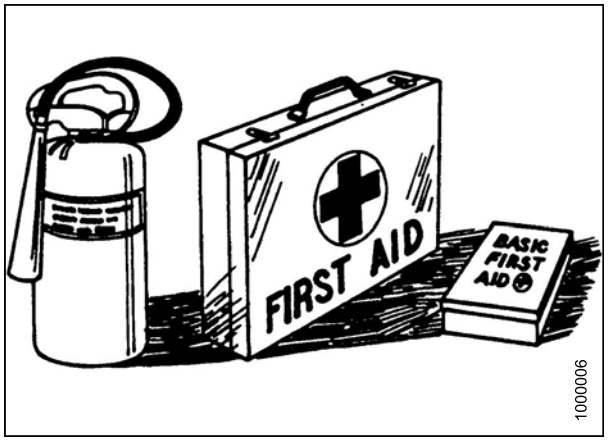


Figure 1.3: Safety Equipment

- Wear close fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.
- Keep all shields in place. Never alter or remove safety equipment. Make sure driveline guards can rotate independently of the shaft and can telescope freely.
- Use only service and repair parts, made, or approved by the equipment manufacturer. Substituted parts may not meet strength, design, or safety requirements.

Figure 1.4: Safety around Equipment

- Keep hands, feet, clothing, and hair away from moving parts. Never attempt to clear obstructions or objects, from a machine while the engine is running.
- Do **NOT** modify the machine. Non-authorized modifications may impair machine function and/or safety. It may also shorten the machine's life.
- Stop the engine and remove the key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

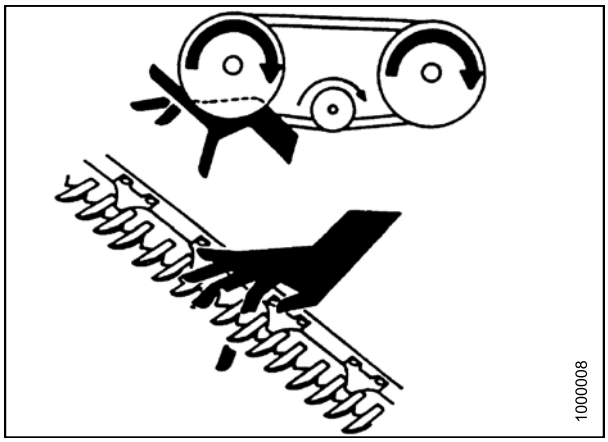


Figure 1.5: Safety around Equipment

- Keep the area used for servicing machinery clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.
- Keep work area well lit.
- Keep machinery clean. Straw and chaff, on a hot engine, are a fire hazard. Do **NOT** allow oil or grease to accumulate on service platforms, ladders, or controls. Clean machines before storage.
- Never use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.
- When storing machinery, cover sharp or extending components to prevent injury from accidental contact.

Figure 1.6: Safety around Equipment

1.3 Safety Signs

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or become illegible.
- If original parts on which a safety sign was installed are replaced, be sure the repair part also bears the current safety sign.
- Safety signs are available from your Dealer Parts Department.

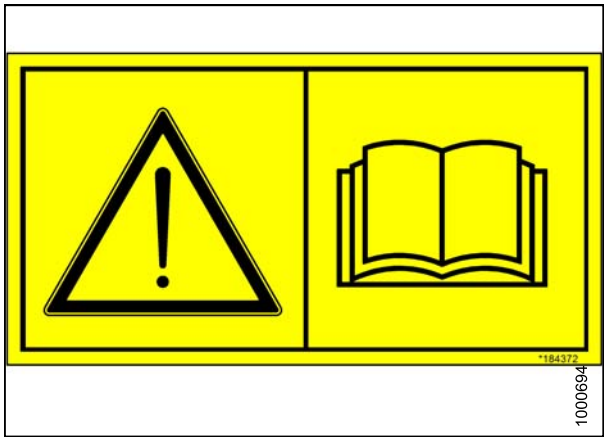


Figure 1.7: Operator's Manual Decal

2 Recommended Torques

2.1 Torque Specifications

The following tables give correct torque values for various bolts, cap screws, and hydraulic fittings.

- Tighten all bolts to the torques specified in chart (unless otherwise noted throughout this manual).
- Replace hardware with the same strength and grade bolt.
- Check tightness of bolts periodically, using the tables below as a guide.
- Torque categories for bolts and cap screws are identified by their head markings.

2.1.1 SAE Bolt Torque Specifications

Torque values shown in this table are valid for non-greased, or non-oiled threads and heads. Therefore, do **NOT** grease or oil bolts or cap screws unless otherwise specified in this manual.

Table 2.1 SAE Grade 5 Bolt and Grade 5 Free Spinning Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*106	*117	11.9	13.2
5/16-18	*218	*241	24.6	27.1
3/8-16	32	36	44	48
7/16-14	52	57	70	77
1/2-13	79	87	106	118
9/16-12	114	126	153	170
5/8-11	157	173	212	234
3/4-10	281	311	380	420
7/8-9	449	496	606	669
1-8	611	676	825	912

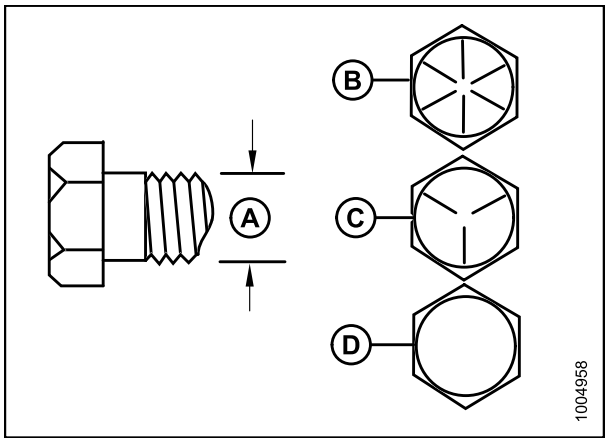


Figure 2.1: Bolt Grades

A - Nominal Size
B - SAE-8
C - SAE-5
D - SAE-2

Table 2.2 SAE Grade 5 Bolt and Grade 5 Distorted Thread Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*72	*80	8.1	9
5/16-18	*149	*164	16.7	18.5
3/8-16	22	24	30	33
7/16-14	35	39	48	53
1/2-13	54	59	73	80
9/16-12	77	86	105	116
5/8-11	107	118	144	160
3/4-10	192	212	259	286
7/8-9	306	338	413	456
1-8	459	507	619	684

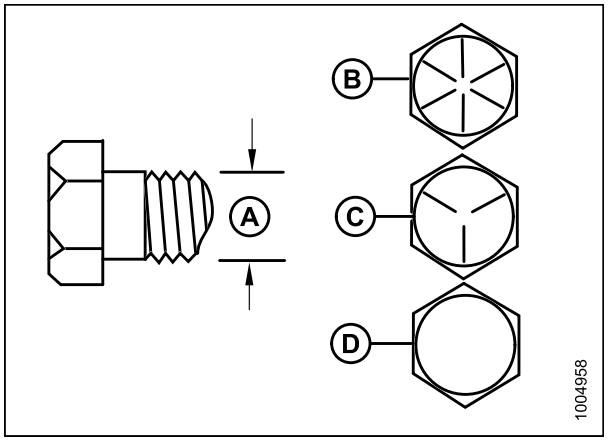


Figure 2.2: Bolt Grades

A - Nominal Size **B - SAE-8**
C - SAE-5 **D - SAE-2**

Table 2.3 SAE Grade 8 Bolt and Grade 8 Distorted Thread Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*150	*165	16.8	18.6
5/16-18	18	19	24	26
3/8-16	31	34	42	46
7/16-14	50	55	67	74
1/2-13	76	84	102	113
9/16-12	109	121	148	163
5/8-11	151	167	204	225
3/4-10	268	296	362	400
7/8-9	432	477	583	644
1-8	647	716	874	966

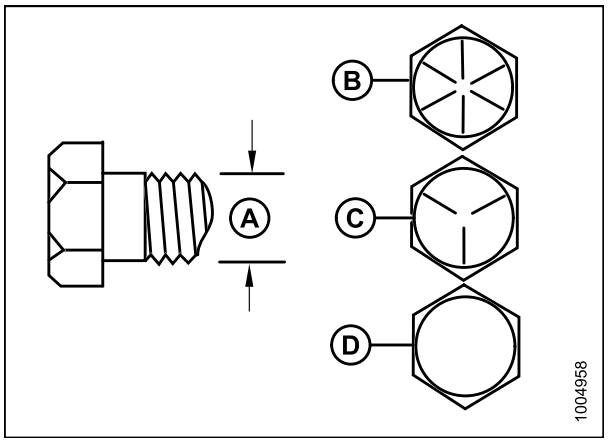


Figure 2.3: Bolt Grades

A - Nominal Size **B - SAE-8**
C - SAE-5 **D - SAE-2**

Table 2.4 SAE Grade 8 Bolt and Grade 8 Free Spinning Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*150	*165	16.8	18.6
5/16-18	26	28	35	38
3/8-16	46	50	61	68
7/16-14	73	81	98	109
1/2-13	111	123	150	166
9/16-12	160	177	217	239
5/8-11	221	345	299	330
3/4-10	393	435	531	587
7/8-9	633	700	855	945
1-8	863	954	1165	1288

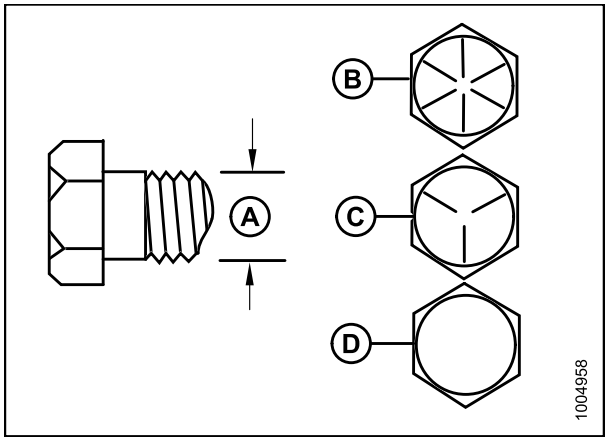


Figure 2.4: Bolt Grades

A - Nominal Size **B - SAE-8**
C - SAE-5 **D - SAE-2**

2.1.2 Metric Bolt Specifications

Table 2.5 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
3-0.5	*13	*14	1.4	1.6
3.5-0.6	*20	*22	2.2	2.5
4-0.7	*29	*32	3.3	3.7
5-0.8	*59	*66	6.7	7.4
6-1.0	*101	*112	11.4	12.6
8-1.25	20	23	28	30
10-1.5	40	45	55	60
12-1.75	70	78	95	105
14-2.0	113	124	152	168
16-2.0	175	193	236	261
20-2.5	341	377	460	509
24-3.0	589	651	796	879

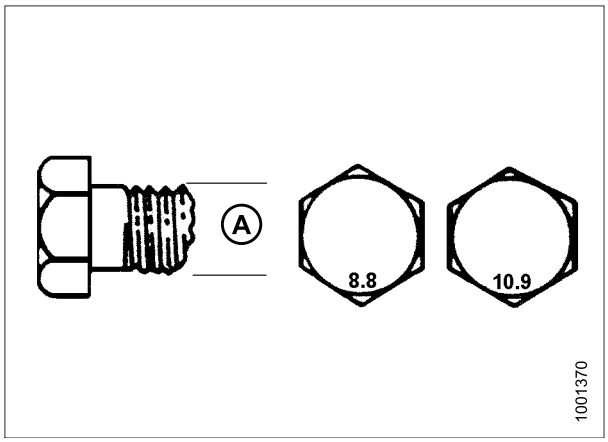


Figure 2.5: Bolt Grades

Table 2.6 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
3-0.5	*9	*10	1	1.1
3.5-0.6	*14	*15	1.5	1.7
4-0.7	*20	*22	2.3	2.5
5-0.8	*40	*45	4.5	5
6-1.0	*69	*76	7.7	8.6
8-1.25	*167	*185	18.8	20.8
10-1.5	28	30	37	41
12-1.75	48	53	65	72
14-2.0	77	85	104	115
16-2.0	119	132	161	178
20-2.5	233	257	314	347
24-3.0	402	444	543	600

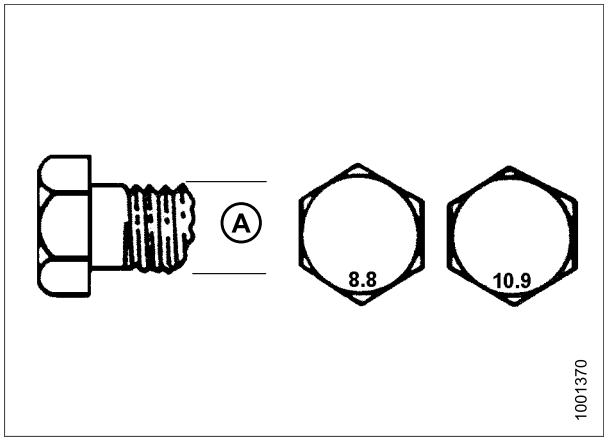


Figure 2.6: Bolt Grades

Table 2.7 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
3-0.5	*18	*19	1.8	2
3.5-0.6	*27	*30	2.8	3.1
4-0.7	*41	*45	4.2	4.6
5-0.8	*82	*91	8.4	9.3
6-1.0	*140	*154	14.3	15.8
8-1.25	28	31	38	42
10-1.5	56	62	75	83
12-1.75	97	108	132	145
14-2.0	156	172	210	232
16-2.0	242	267	326	360
20-2.5	472	521	637	704
24-3.0	815	901	1101	1217

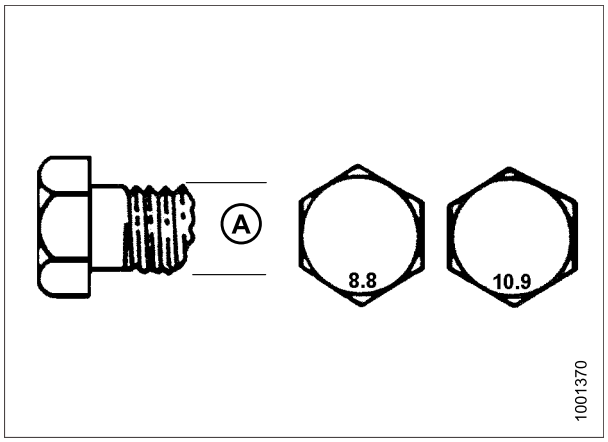


Figure 2.7: Bolt Grades

Table 2.8 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
3-0.5	*12	*13	1.3	1.5
3.5-0.6	*19	*21	2.1	2.3
4-0.7	*28	*31	3.1	3.4
5-0.8	*56	*62	6.3	7
6-1.0	*95	*105	10.7	11.8
8-1.25	19	21	26	29
10-1.5	38	42	51	57
12-1.75	66	73	90	99
14-2.0	106	117	143	158
16-2.0	165	182	222	246
20-2.5	322	356	434	480
24-3.0	556	614	750	829

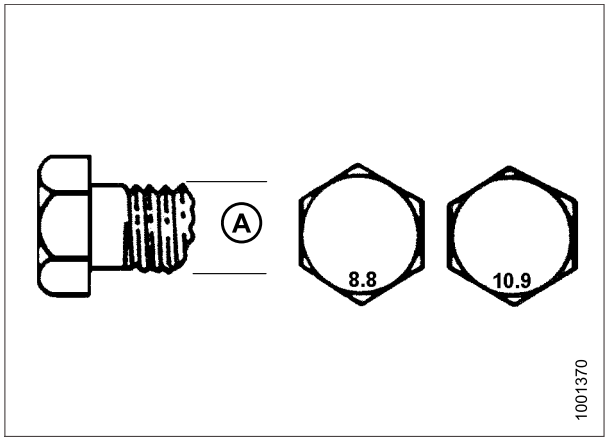


Figure 2.8: Bolt Grades

2.1.3 Metric Bolt Specifications Bolting into Cast Aluminum

Table 2.9 Metric Bolt Bolting into Cast Aluminum

Nominal Size (A)	Bolt Torque			
	8.8 (Cast Aluminum)		10.9 (Cast Aluminum)	
	ft·lbf	N·m	ft·lbf	N·m
M3			1	
M4			2.6	4
M5			5.5	8
M6	6	9	9	12
M8	14	20	20	28
M10	28	40	40	55
M12	52	70	73	100
M14				
M16				

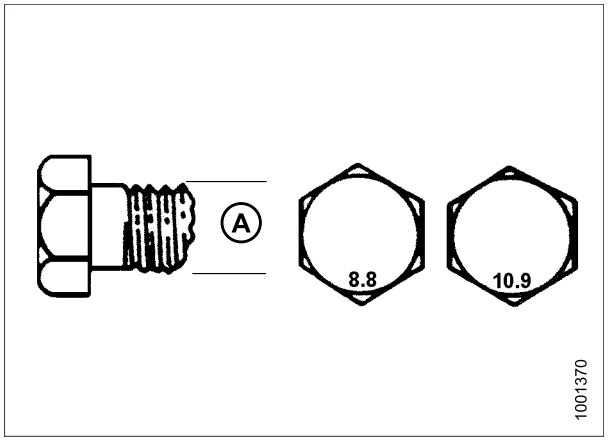


Figure 2.9: Bolt Grades

2.1.4 Flare-Type Hydraulic Fittings

1. Check flare (A) and flare seat (B) for defects that might cause leakage.
2. Align tube (C) with fitting (D) and thread nut (E) onto fitting without lubrication until contact has been made between the flared surfaces.
3. Torque the fitting nut (E) to the specified number of flats from finger tight (FFFT) or to a given torque value shown in the following table.
4. To prevent the fitting (D) from rotating, use two wrenches. Place one wrench on the fitting body (D) and tighten the nut (E) with the other wrench to the torque shown.
5. Assess the final condition of the connection.

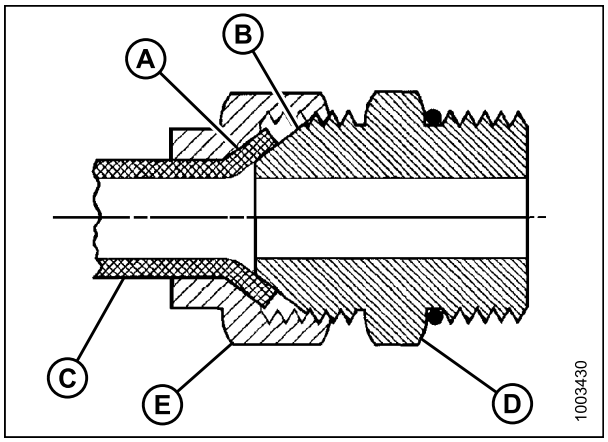


Figure 2.10: Hydraulic Fitting

Table 2.10 Flare-Type Hydraulic Tube Fittings

SAE No.	Tube Size O.D. (in.)	Thread Size (in.)	Nut Size across Flats (in.)	Torque Value[1]		Flats from Finger Tight (FFFT)	
				ft·lbf	N·m	Flats	Turns
3	3/16	3/8	7/16	6	8	1	1/6
4	1/4	7/16	9/16	9	12	1	1/6
5	5/16	1/2	5/8	12	16	1	1/6
6	3/8	9/16	11/16	18	24	1	1/6
8	1/2	3/4	7/8	34	46	1	1/6
10	5/8	7/8	1	46	62	1	1/6
12	3/4	1-1/16	1-1/4	75	102	3/4	1/8
14	7/8	1-3/8	1-3/8	90	122	3/4	1/8
16	1	1-5/16	1-1/2	105	142	3/4	1/8

1. Torque values shown are based on lubricated connections as in reassembly.

2.1.5 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Back off the lock nut (C) as far as possible. Ensure that washer (D) is not loose and is pushed toward the lock nut (C) as far as possible.
3. Check that O-ring (A) is **NOT** on the threads, adjust if necessary.
4. Apply hydraulic system oil to the O-ring (A).

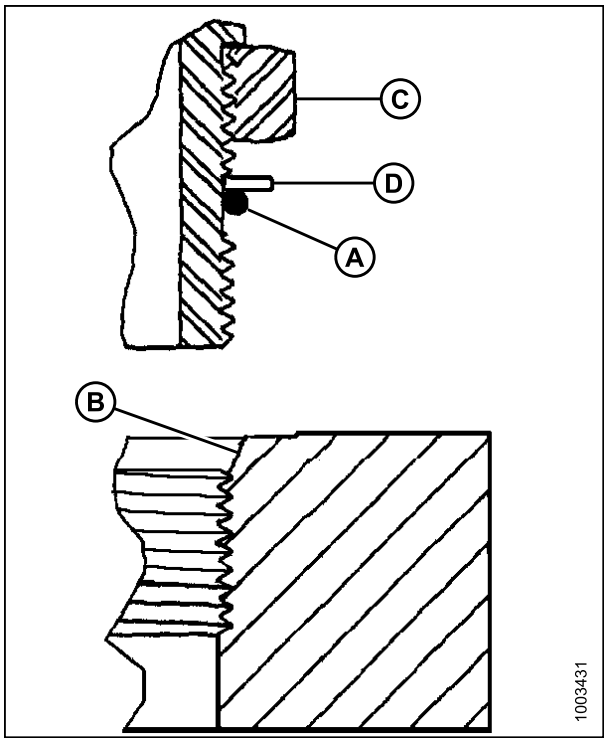


Figure 2.11: Hydraulic Fitting

5. Install fitting (B) into port until back up washer (D) and O-ring (A) contacts on part face (E).
6. Position angle fittings by unscrewing no more than one turn.
7. Turn lock nut (C) down to washer (D) and tighten to torque shown. Use two wrenches, one on the fitting (B) and the other on the lock nut (C).
8. Check the final condition of the fitting.

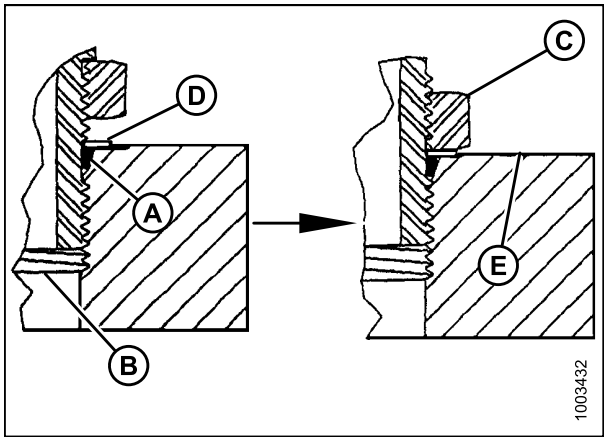


Figure 2.12: Hydraulic Fitting

Table 2.11 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value[2]	
		ft·lbf (*in·lbf)	N·m
-3	3/8-24	*106–115	12–13
-4	7/16–20	14–15	19–21
-5	1/2–20	15–24	21–33

2. Torque values shown are based on lubricated connections as in reassembly.

RECOMMENDED TORQUES

SAE Dash Size	Thread Size (in.)	Torque Value[2]	
		ft·lbf (*in·lbf)	N·m
-6	9/16–18	19–21	26–29
-8	3/4–16	34–37	46–50
-10	7/8–14	55–60	75–82
-12	1-1/16-12	88–97	120–132
-14	1-3/8-12	113–124	153–168
-16	1-5/16-12	130–142	176–193
-20	1-5/8-12	163–179	221–243
-24	1-7/8-12	199–220	270–298

2.1.6 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on the threads, adjust if necessary.
3. Apply hydraulic system oil to the O-ring.
4. Install fitting (C) into port until fitting is hand tight.
5. Torque fitting (C) per value in chart. Refer to Table *2.12 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable), page 14*.
6. Check the final condition of the fitting.

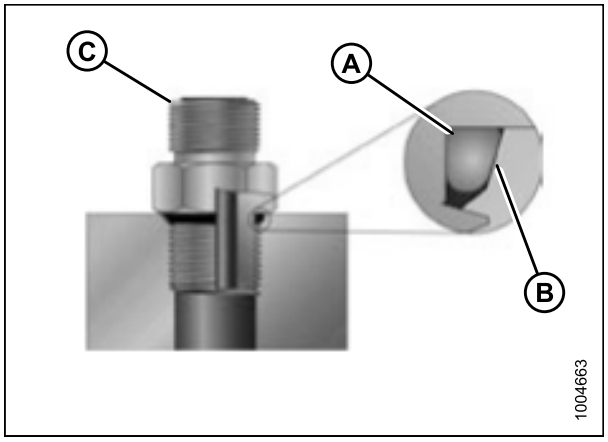


Figure 2.13: Hydraulic Fitting

Table 2.12 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value[3]	
		ft·lbf (*in·lbf)	N·m
-3	3/8-24	*106–115	12–13
-4	7/16–20	14–15	19–21
-5	1/2–20	15–24	21–33
-6	9/16–18	19–21	26–29
-8	3/4–16	34–37	46–50
-10	7/8–14	55–60	75–82
-12	1-1/16-12	88–97	120–132
-14	1-3/8-12	113–124	153–168
-16	1-5/16-12	130–142	176–193
-20	1-5/8-12	163–179	221–243
-24	1-7/8-12	199–220	270–298

3. Torque values shown are based on lubricated connections as in reassembly.

2.1.7 O-Ring Face Seal (ORFS) Hydraulic Fittings

To tighten O-ring face seal (ORFS) hydraulic fittings, follow these steps:

1. Check components to ensure that the sealing surfaces and fitting threads are free of burrs, nicks, and scratches or any foreign material.

Figure 2.14: Hydraulic Fitting

2. Apply hydraulic system oil to the O-ring (B).
3. Align the tube or hose assembly so that the flat face of the sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until hand-tight. The nut should turn freely until it is bottomed out.
5. Torque fitting further to the torque value in the table shown in the opposite column.

NOTE:

If applicable, hold the hex on the fitting body (E) to prevent rotation of fitting body and hose when tightening the fitting nut (D).

6. When assembling unions or two hoses together, three wrenches will be required.
7. Check the final condition of the fitting.

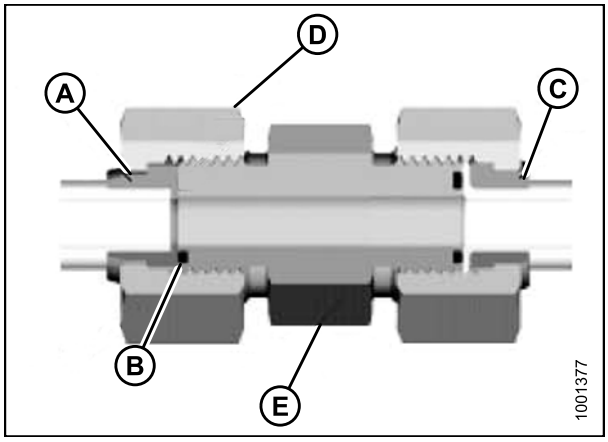


Figure 2.15: Hydraulic Fitting

Table 2.13 O-Ring Face Seal (ORFS) Hydraulic Fittings

SAE Dash Size	Thread Size (in.)	Torque Value[4]	
		ft·lbf (*in·lbf)	N·m
-3	Note[5]	–	–
-4	9/16–18	18–21	25–28
-5	Note[5]	–	–
-6	11/16-16	29–32	40–44
-8	13/16-16	41–45	55–61
-10	1–14	59–65	80–88
-12	1-3/16-12	85–94	115–127
-14	Note[5]	–	–
-16	1-7/16-12	111–122	150–165
-20	1-11/16-12	151–167	205–226
-24	2–12	232–256	315–347
-32	2-1/2-12	376–414	510–561

4. Torque values and angles shown are based on lubricated connection, as in reassembly.
5. O-ring face seal type end not defined for this tube size.

3 Conversion Chart

Quantity	Inch-Pound Units		Factor	SI Units (Metric)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	acres	acres	x 0.4047 =	hectares	ha
Flow	US gallons per minute	gpm	x 3.7854 =	liters per minute	L/min
Force	pounds force	lbf	x 4.4482 =	Newtons	N
Length	inch	in.	x 25.4 =	millimeters	mm
	foot	ft.	x 0.305 =	meters	m
Power	horsepower	hp	x 0.7457 =	kilowatts	kW
Pressure	pounds per square inch	psi	x 6.8948 =	kilopascals	kPa
			x .00689 =	megapascals	MPa
			÷ 14.5038 =	bar (non-SI)	bar
Torque	pound feet or foot pounds	ft·lbf	x 1.3558 =	newton meters	N·m
	pound inches or inch pounds	in·lbf	x 0.1129 =	newton meters	N·m
Temperature	degrees fahrenheit	˚F	(˚F-32) x 0.56 =	Celsius	˚C
Velocity	feet per minute	ft/min	x 0.3048 =	meters per minute	m/min
	feet per second	ft/s	x 0.3048 =	meters per second	m/s
	miles per hour	mph	x 1.6063 =	kilometres per hour	km/h
Volume	US gallons	US gal	x 3.7854 =	liters	L
	ounces	oz.	x 29.5735 =	milliliters	ml
	cubic inches	$in.^3$	x 16.3871 =	cubic centimetres	cm^3 or cc
Weight	pounds	lbs	x 0.4536 =	kilograms	kg

4 Definitions

The following terms and acronyms may be used in this manual.

Term	Definition
AHHC	Automatic Header Height Control
API	American Petroleum Institute.
ASTM	American Society of Testing and Materials.
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut.
Center-link	A hydraulic cylinder or manually adjustable turnbuckle type link between the header and the machine to which it is attached. It is used to change header angle.
CGVW	Combined vehicle gross weight.
D-Series header	MacDon rigid draper header.
DK	Double knife.
DKD	Double-knife drive.
DDD	Double draper drive.
DR	Double reel.
FD-Series header	MacDon FlexDraper® header.
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other and the fitting has been tightened to a point where the fitting is no longer loose.
FFFT	Flats from finger tight.
GSL	Ground speed lever.
GVW	Gross vehicle weight.
Hard joint	A joint made with the use of a fastener where the joining materials are highly incompressible.
Header	A machine that cuts crop and feeds it into an attached combine.
Hex key	A hex key or Allen key (also known by various other synonyms) is a tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in the head (internal-wrenching hexagon drive).
HDS	Hydraulic deck shift.
hp	Horsepower.
ISC	Intermediate Speed Control.
JIC	Joint Industrial Council: a standards body that developed the standard sizing and shape for original 37° flared fitting.
Knife	A cutting device which uses a reciprocating cutter. Also called a sickle.
n/a	Not applicable.
Nut	An internally threaded fastener that is designed to be paired with a bolt.
NPT	National Pipe Thread: a style of fitting used for low pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit.

DEFINITIONS

Term	Definition
ORB	O-ring boss: a style of fitting commonly used in port opening on manifolds, pumps and motors.
ORFS	O-ring face seal: a style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring seal.
PTO	Power Take-Off.
RoHS (Reduction of Hazardous Substances)	A directive by the European Union to restrict the use of certain hazardous substances (such as hexavalent chromium used in some yellow zinc platings).
SAE	Society Of Automotive Engineers.
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread in one of the mating parts.
SDD	Single draper drive.
Self-Propelled (SP) Windrower	Self-propelled machine consisting of a power unit with a header.
SK	Single knife.
SKD	Single-knife drive.
Soft joint	A joint made with the use of a fastener where the joining materials are compressible or experience relaxation over a period of time.
spm	Strokes per minute.
SR	Single reel.
Tractor	Agricultural type tractor.
Truck	A four-wheel highway/road vehicle weighing no less than 7500 lbs (3400 kg).
Timed knife drive	Synchronized motion applied at the cutterbar to two separately driven knives from a single hydraulic motor.
Tension	Axial load placed on a bolt or screw, usually measured in pounds (lb) or Newtons (N).
TFFT	Turns from finger tight.
Torque	The product of a force X lever arm length, usually measured in foot-pounds (ft·lbf) or Newton-meters (N·m).
Torque angle	A tightening procedure where the fitting is assembled to a precondition (finger tight) and then the nut is turned further a number of degrees or a number of flats to achieve its final position.
Torque-tension	The relationship between the assembly torque applied to a piece of hardware and the axial load it induces in the bolt or screw.
UCA	Upper cross auger.
Untimed knife drive	Unsynchronized motion applied at the cutterbar to two separately driven knives from a single hydraulic motor or two hydraulic motors.
Washer	A thin cylinder with a hole or slot located in the center and is to be used as a spacer, load distribution element, or a locking mechanism.
Windrower	Power unit of a self-propelled header.

5 Unloading Header and Adapter

Perform all procedures in this chapter in the order in which they are listed.

5.1 Unloading Header and Adapter from Trailer

CAUTION

To avoid injury to bystanders from being struck by machinery, do not allow people to stand in unloading area.

CAUTION

Equipment used for unloading must meet or exceed the requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, or machine damage.

Table 5.1 Lifting Vehicle

Minimum Lifting Capacity (At 48 in. (1220 mm) from back end of forks)	9000 lb (4082 kg)
Minimum Fork Length	78 in. (1981 mm)

IMPORTANT:

Forklifts are normally rated for a load located 24 inches (610 mm) from back end of forks. To obtain forklift capacity at 48 inches (1220 mm), check with your forklift distributor.

To unload headers and adapters from a trailer, follow these steps:

1. Move trailer into position, and block trailer wheels.
2. Lower trailer storage stands.

CAUTION

Avoid lifting the second header and ensure the forks do not interfere with the shipping frame. If the forks contact the second header, damage to the headers may occur.

3. Approach the header, and line up one fork with guide (A) under adapter frame.
4. Slide forks (C) underneath shipping support (B) of header as far as possible without contacting the shipping support of the opposite header.
5. Remove hauler's tie-down straps and chains.
6. Slowly raise header off trailer deck.

WARNING

Be sure forks are secure before moving away from load. Stand clear when lifting.

7. Back up until unit clears trailer, and slowly lower to 6 in. (150 mm) from ground.

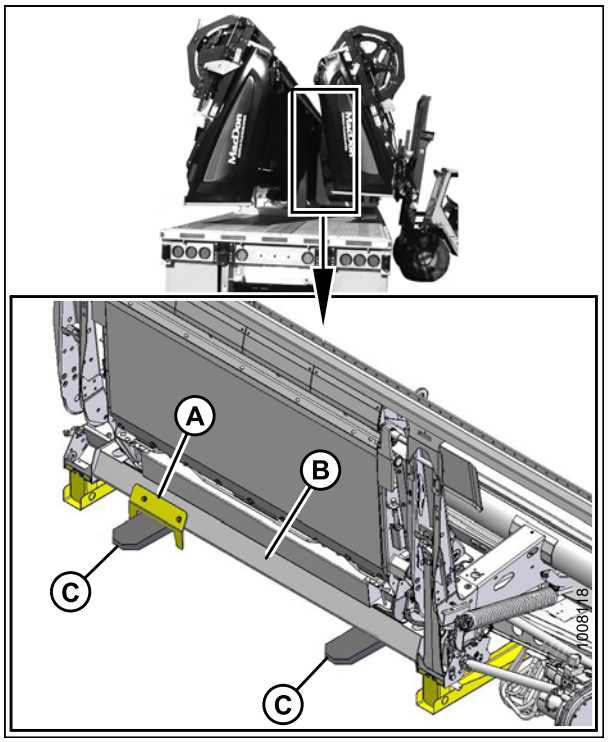


Figure 5.1: Adapter Frame Shipping Supports

8. Take header to storage or setup area.
9. Repeat above steps for second header.
10. Check for shipping damage and missing parts.

5.2 Lowering Header

Position header in preparation for assembly and setup as follows:

1. Remove fork guide (A) from adapter lower frame.
2. Choose area with level ground.

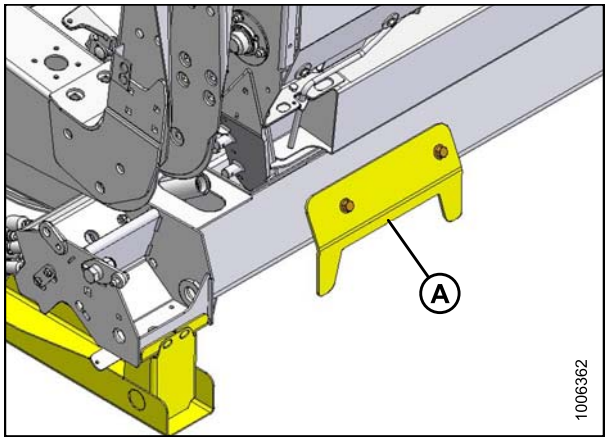


Figure 5.2: Fork Guide on Adapter

3. Drive lifting vehicle to approach header from its underside.

IMPORTANT:

Do NOT lift at cutterbar when unloading from trailer. This procedure is only for laying the machine over into working position.

4. Attach chain to shipping support at center reel arm (combine adapter not shown).

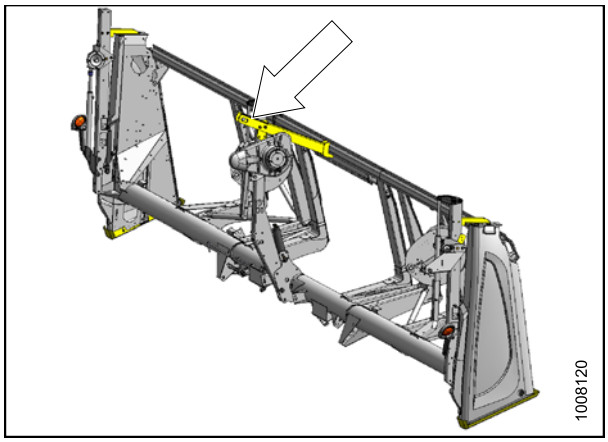


Figure 5.3: Shipping Support

5. Back up SLOWLY while lowering forks until header rests on the ground.

CAUTION

Stand clear when lowering, as machine may swing.

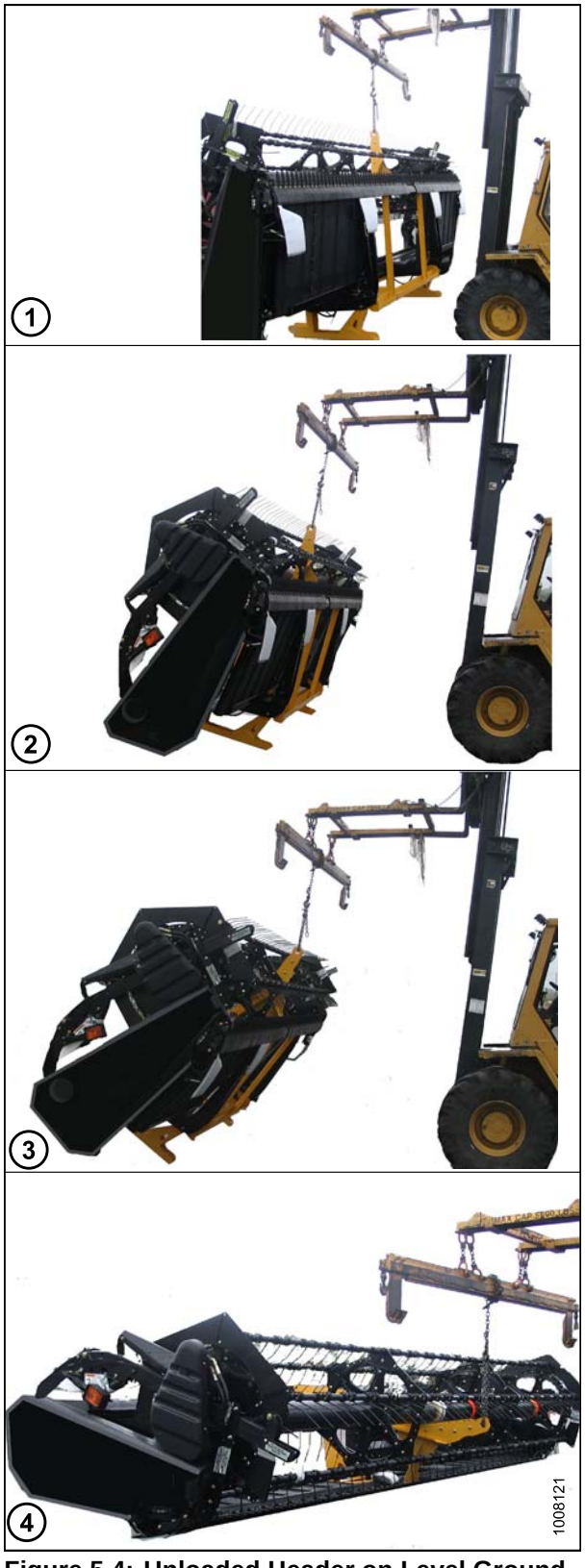


Figure 5.4: Unloaded Header on Level Ground

6. Place 6 inch (150 mm) blocks (A) under each end and center of cutterbar, and lower header onto blocks.

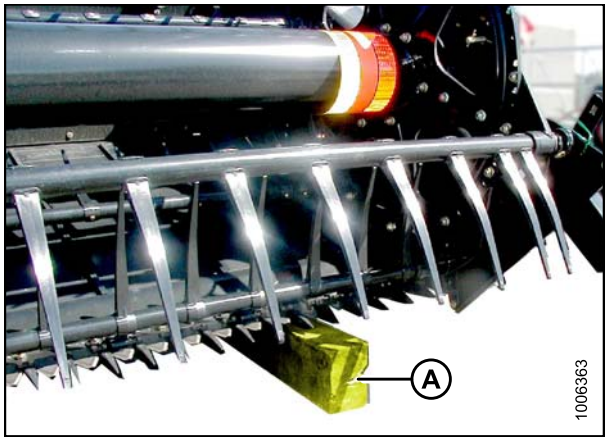


Figure 5.5: Blocks at Each End of Cutterbar

7. Remove chain.

5.3 Removing Shipping Stands

The removable stands are painted yellow.

NOTE:

Unless otherwise specified, discard stands as well as all shipping material and hardware.

To remove shipping stands, follow these steps:

1. Remove four bolts (A) at the base of the two adapter frame stands, and lift shipping stands off adapter.

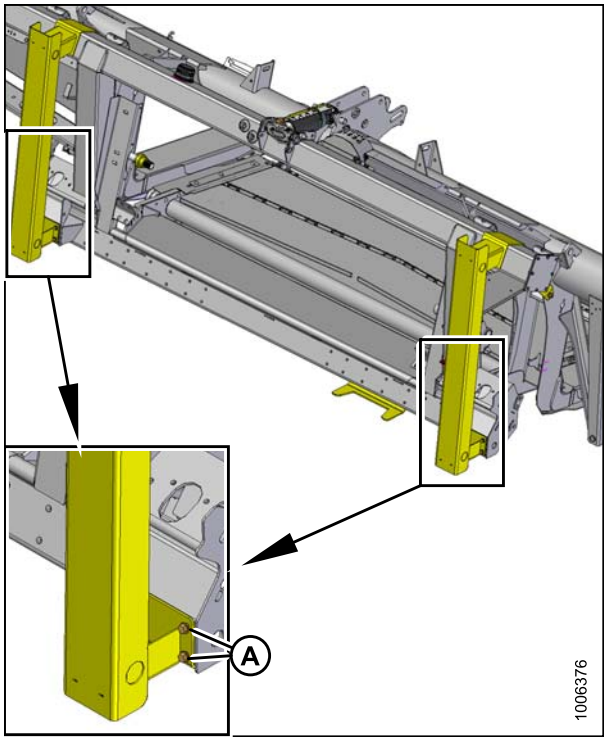


Figure 5.6: Adapter Shipping Stands

2. Remove two bolts (A) from bracket (B) on bottom of adapter frame, and remove bracket (B).

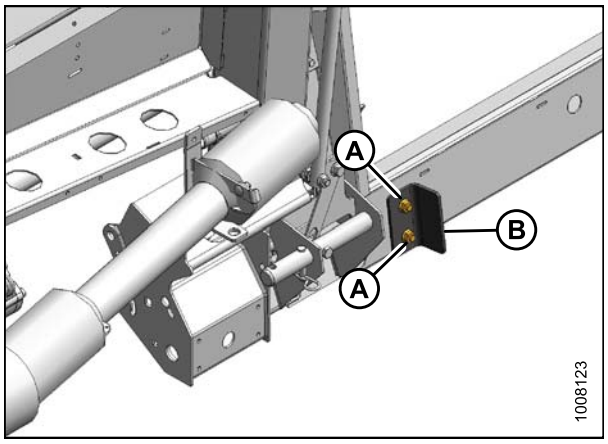


Figure 5.7: Bracket on Bottom of Adapter Frame

3. Remove four bolts (A) in each shipping stand on outboard header legs, and remove stands.

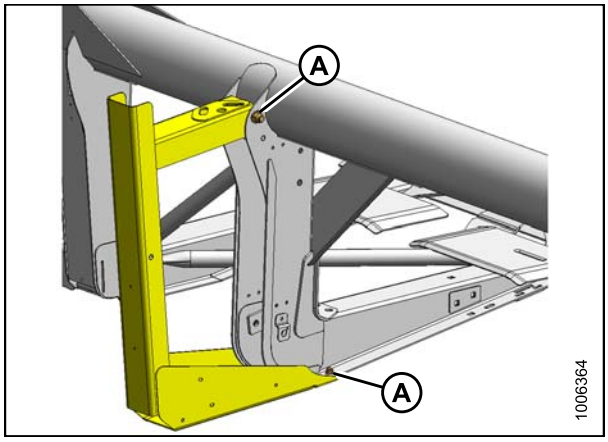


Figure 5.8: Shipping Stands on Outboard Header Legs

4. Remove reel anti-rotation strap between reel and endsheet.

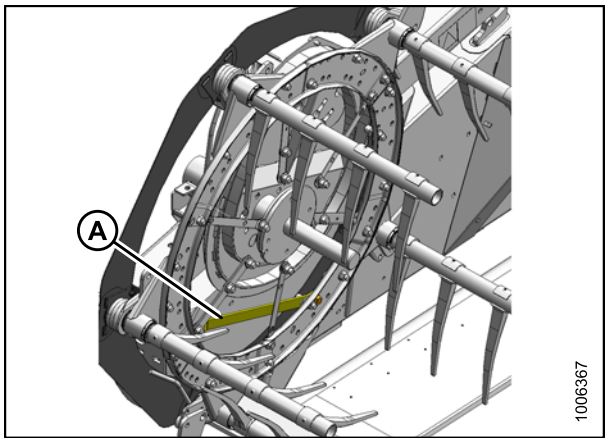


Figure 5.9: Reel Anti-Rotation Strap

5. Loosen three bolts (A) in each endshield guard, and remove guards. Hardware can be removed when header endshields are opened.

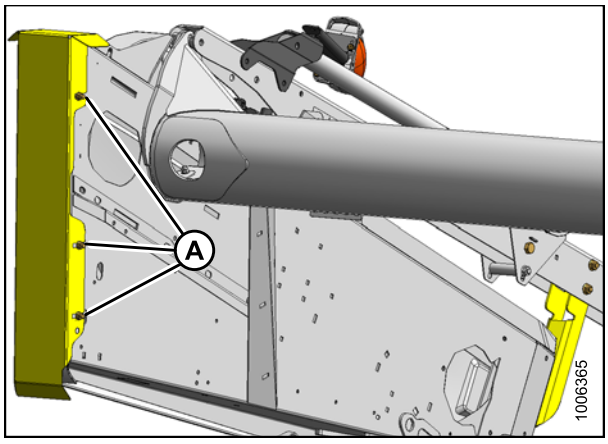


Figure 5.10: Endshield Guards

6 Assembling Header and Adapter

Perform all procedures in this chapter in the order in which they are listed.

6.1 Installing Reel Lift Cylinders

CAUTION

Braces on reel arms keep reel from sliding forward. Do not remove.

1. Remove two top bolts on outboard reel arm support—both ends.

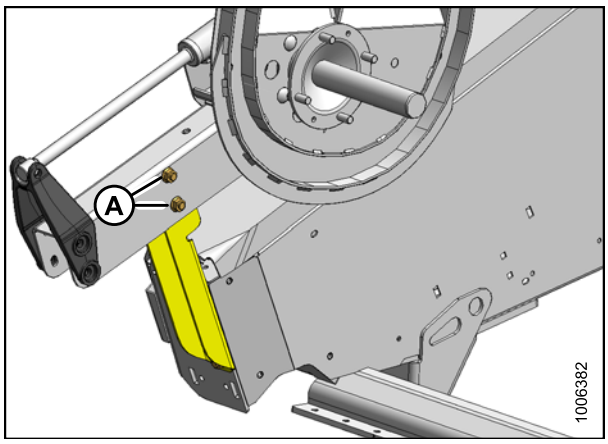


Figure 6.1: Outboard Reel Arm Support

2. Remove two top bolts (A) on center reel arm.
3. Position sling around the reel tube close to outboard end of reel, and attach sling to a forklift (or equivalent).
4. Remove shipping wire/banding from cylinder, and remove pins from lug and arm.
5. Lift reel so the reel lift cylinder mounting holes line up with lug on endsheet and hole in reel arm.

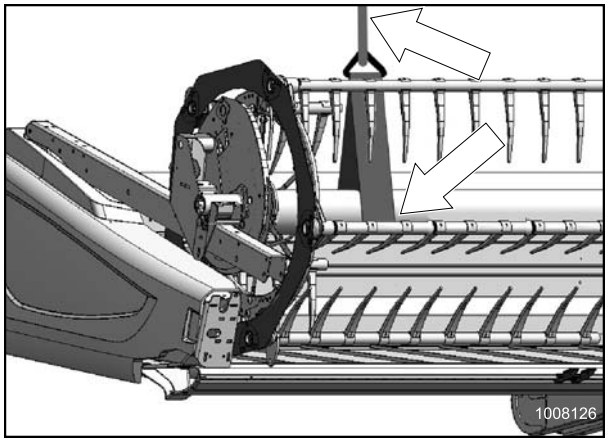


Figure 6.2: Reel Tube

6. Secure cylinder to endsheet and reel arm with pins as shown.

NOTE:

Insert cotter pin **OUTBOARD** at reel arm, and insert cotter pin **INBOARD** at endsheet.

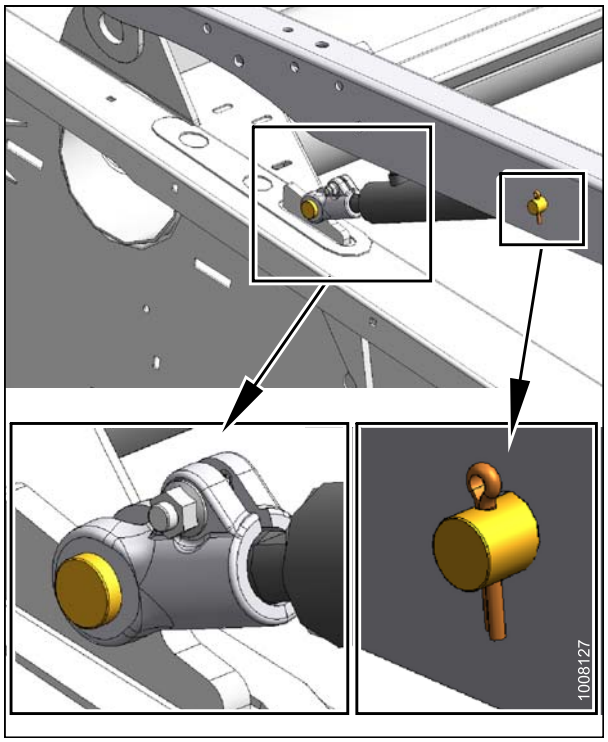


Figure 6.3: Right-Hand Shown - Left-Hand Opposite

7. At outer arm, move reel safety props (A) to engaged position (B).

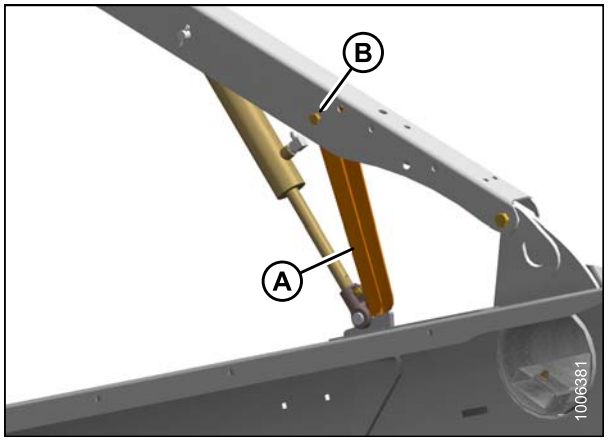


Figure 6.4: Reel Safety Props

8. At outer arm, move reel safety props (A) to engaged position (B).

9. Remove sling (A), and reposition around reel tube near reel center support arm.
10. Remove shipping wire and banding from center reel lift cylinder, and remove socket head bolt and nut from cylinder rod.

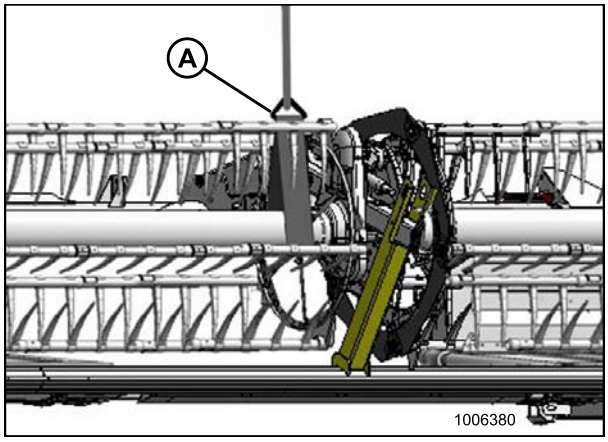


Figure 6.5: Double-Reel Header Only

11. Lift reel so that hole in center lift cylinder rod lines up with mounting hole in reel arm.
12. Attach rod end of cylinder to reel arm with socket head bolt and nut. Access hardware through holes in reel arm braces.

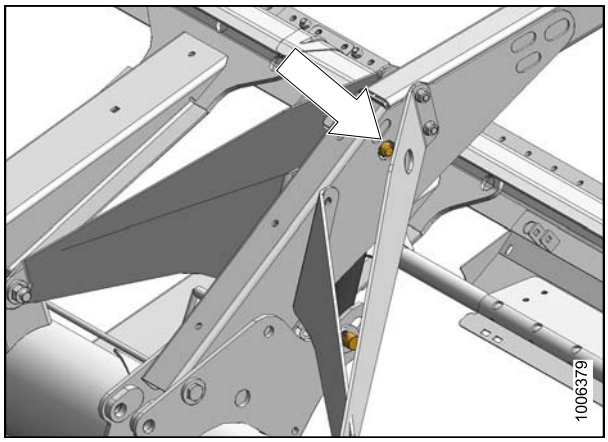


Figure 6.6: Center Arm - Double-Reel Header Only

13. Use handle (A) to move lock rod to inboard position (B), engaging pin (C) into lock in arm.
14. Lower reel until props contact cylinder mounts on outer reel arms, and pin at center arm.
15. Remove pin at barrel end of cylinder.
16. Adjust reel height so pin can be installed at barrel end of cylinder and mounting structure.

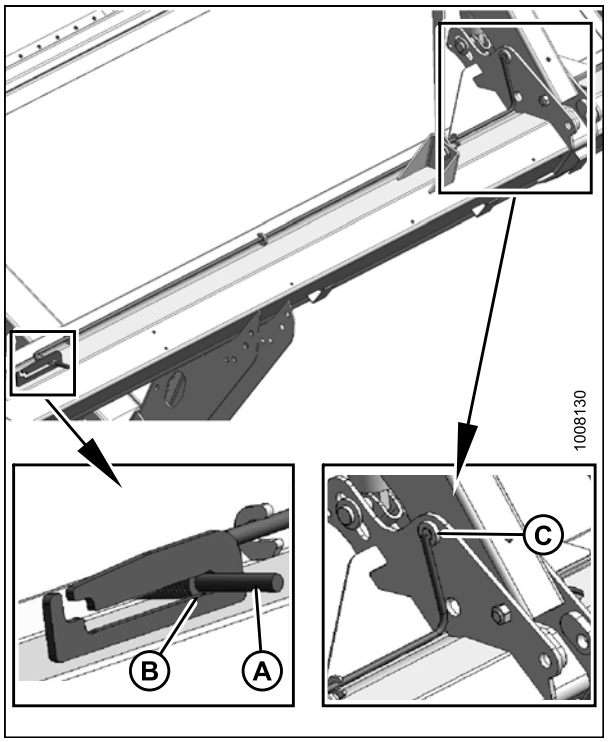


Figure 6.7: Lock Rod

17. Remove sling, and reposition around reel tube near opposite outboard reel arm.
18. Remove shipping wire and banding from cylinder, and remove pins from lug and arm.

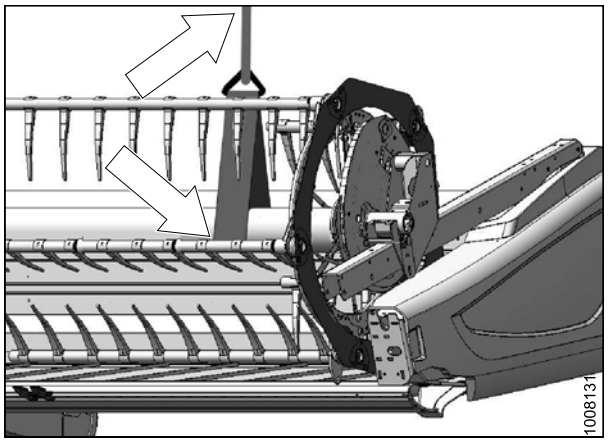


Figure 6.8: Outboard Reel Arm

19. At opposite outboard reel arm, move reel safety props (A) to engaged position (B).
20. Remove shipping wire and banding from cylinder, and remove pins from lug and arm.
21. Lift reel so that reel lift cylinder mounting holes line up with lug on endsheet and hole in reel arm.

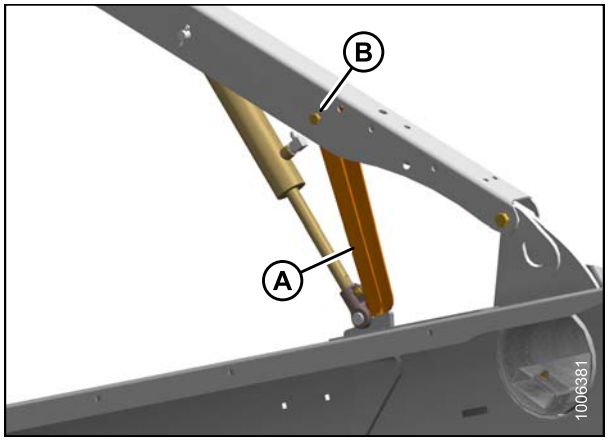


Figure 6.9: Reel Safety Prop

22. Secure cylinder to endsheet and reel arm with pins as shown.

NOTE:

Insert cotter pin **OUTBOARD** at reel arm, and insert cotter pin **INBOARD** at endsheet.

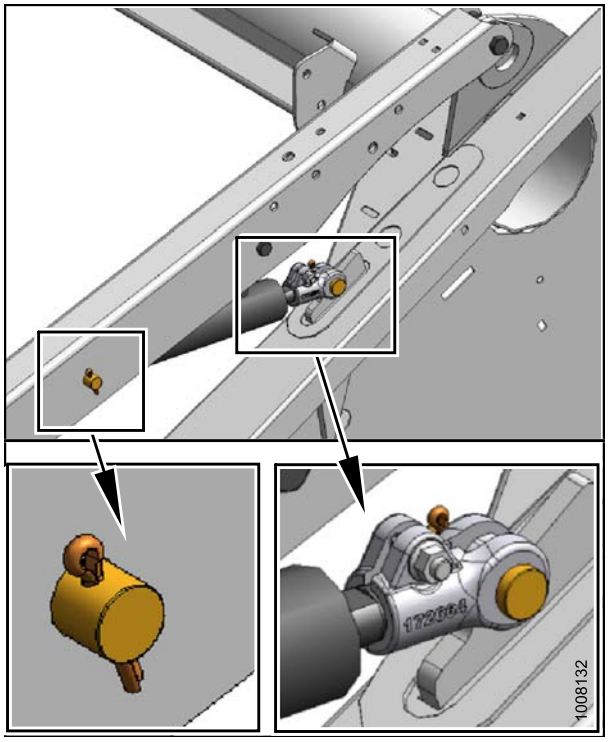


Figure 6.10: Cylinder and Endsheet

23. Remove the three remaining bolts (A). Disengage center reel arm shipping support from cutterbar, and remove.

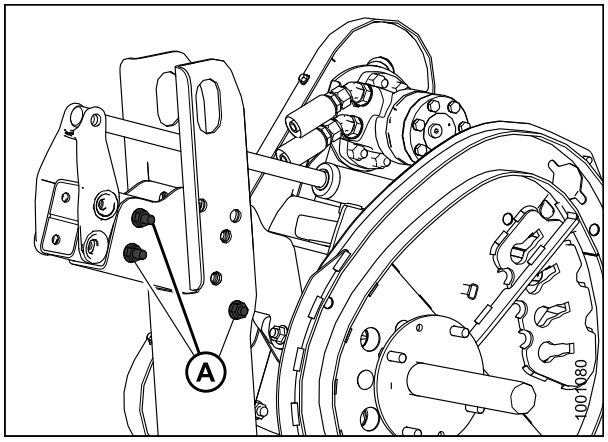


Figure 6.11: Center Reel Arm Shipping Support

24. Remove two bolts (A) from reel arm support at endsheet, and remove support. Repeat at other side.

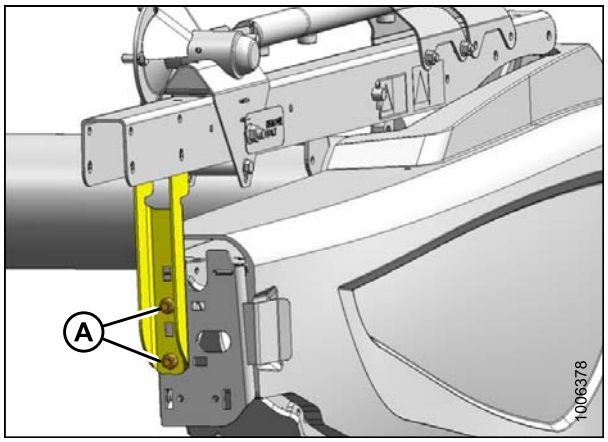


Figure 6.12: Outboard Reel Arm Supports

25. Remove bolts and tags locking reel fore-aft position at outer reel arms.

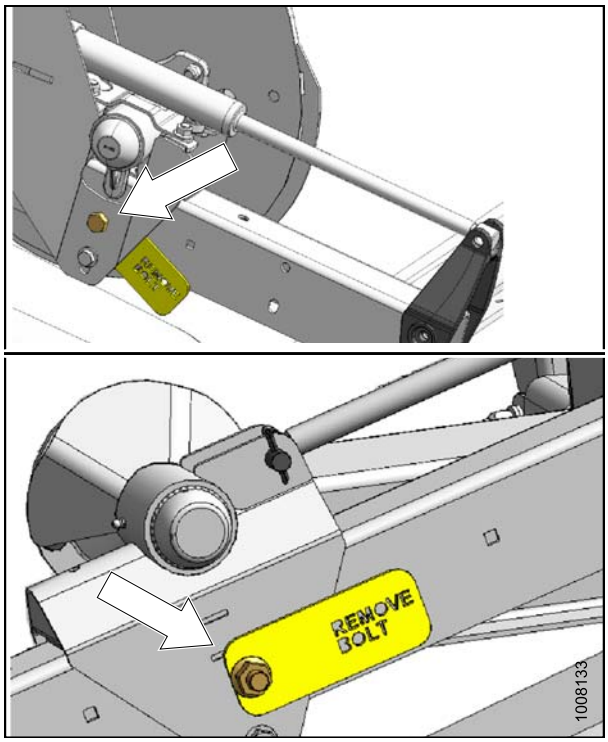


Figure 6.13: Right-Hand and Left-Hand Arm

26. Remove bolt locking reel fore-aft position at center reel arm, and remove center reel arm shipping channel.

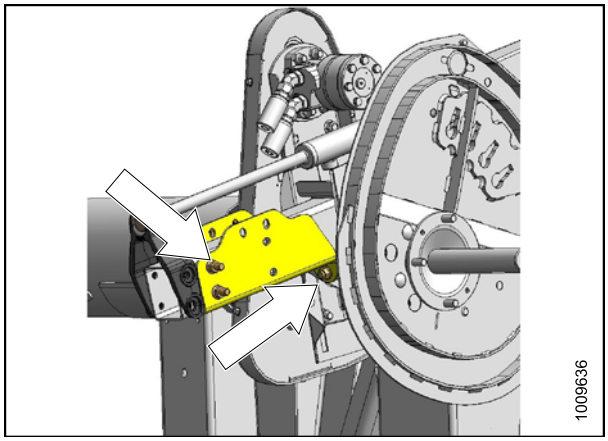


Figure 6.14: Double Reel Only

6.2 Installing Options

1. Retrieve kits supplied as options with the header, and install in accordance with the installation instructions supplied with each kit.
2. Proceed to *7 Performing Predelivery Checks, page 91*.

6.3 Setting Up Combine Adapter

Setting up the adapter requires several procedures. Follow each one in order:

1. *6.3.1 Installing Filler Cap, page 37*
2. *6.3.2 Installing Flighting Extensions, page 39*
3. *6.3.3 Removing Stripper Bars, page 40*
4. *6.3.4 Replacing CR Feeder Deflectors, page 40*

6.3.1 Installing Filler Cap

1. Remove filler cap from bag (A).

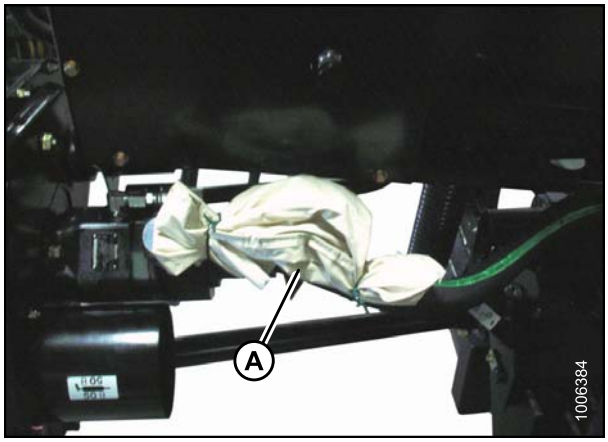


Figure 6.15: Hardware Bag

2. Remove yellow shipping cover (A) from adapter frame. Discard cover. Keep screws.

CAUTION

Cap may be under pressure. Allow pressure to equalize by lifting cap slightly with some of the screws remaining.

Figure 6.16: Yellow Shipping Cover

3. There are two gaskets—one on either side of the filler strainer flange. Remove the top gasket (A) for use in the next step.

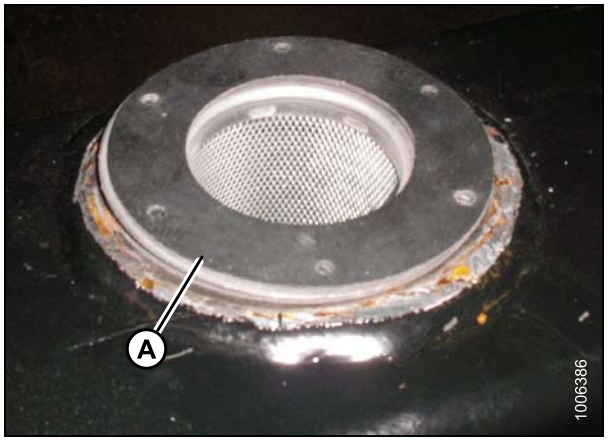


Figure 6.17: Top Gasket

4. Place gasket (A) that was removed from the top of the filler strainer onto filler cap neck (B), and align holes.
5. Install #10-32 screws on filler cap neck (B), pressing screws through the gasket (A).
6. Apply Loctite® #565 (or equivalent) to screws.

Figure 6.18: Filler Cap Neck

7. Place filler cap neck (A) (complete with screws) over opening, aligning the machine screws with the threaded holes.
8. Carefully thread in the machine screws using a cross pattern (refer to photo above) to prevent cross threading of tapped holes.
9. Repeat pattern to gradually tighten screws to 31 ft·lbf (3.5 N·m).

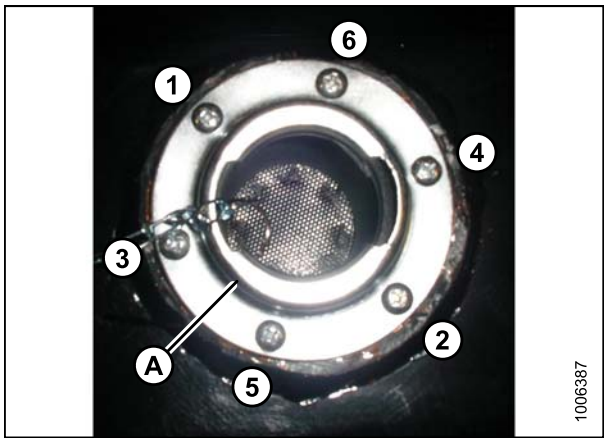


Figure 6.19: Screw Hole Locations

10. Install filler cap (A).

Figure 6.20: Filler Cap

6.3.2 Installing Flighting Extensions

Flighting extension kits may have been supplied with your header to improve feeding in certain crops such as rice. They are **NOT** recommended in cereal crops.

APPLICABLE COMBINES: All except New Holland CR960, 9060, 970, 9070, and 9080.

If necessary, remove auger flighting extensions as follows.

1. Remove access cover (A).
2. Remove eight bolts (B), washers, and nuts that secure flighting extension (C) to auger, and remove extension.
3. Repeat for other flighting extension.
4. Reinstall access cover (A).

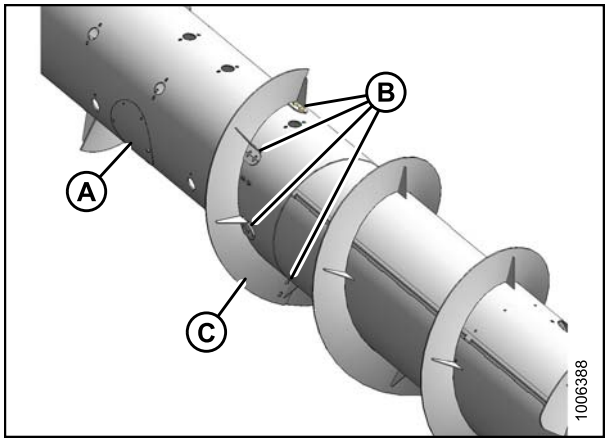


Figure 6.21: Auger Flighting Extension

6.3.3 Removing Stripper Bars

Stripper bar kits may have been supplied with your header to improve feeding in certain crops such as rice. They are **NOT** recommended in cereal crops.

APPLICABLE COMBINES: All except New Holland CR960, 9060, 970, 9070, and 9080.

If necessary, remove auger stripper bars as follows:

1. Remove four bolts (A) and nuts securing bars (B) to adapter frame, and remove bars.
2. Repeat for opposite set of stripper bars.

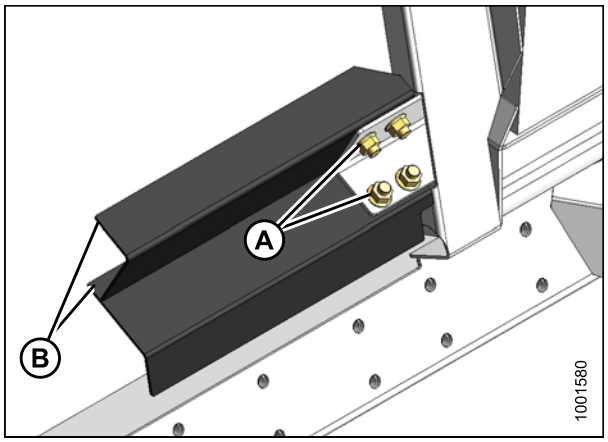


Figure 6.22: Auger Stripper Bar

6.3.4 Replacing CR Feeder Deflectors

For New Holland CR 960, 9070, and 9080 combines, feeder kits have been installed on adapter at the factory to improve feeding into the feeder house. They may also have been installed as an option on older machines. If necessary, they can be removed.

CA25 adapters for the CR Models listed have short feeder kits installed at the factory. Long feeder kits are provided for narrow feeder house combines, and are dealer-installed to replace short feeder kits.

Table 6.1 CA25 adapters for the CR Models

Combine Model	Feeder House Size	Feeder Kit Size
CR970, 9070, 9080	Wide	Short: 200 mm
CR960, 9060, 940, 9040	Narrow	Long: 325 mm

If required, replace the feeder deflectors:

1. Determine position of existing deflector (A) by measuring gap **'X'** between deflector forward edge and pan.

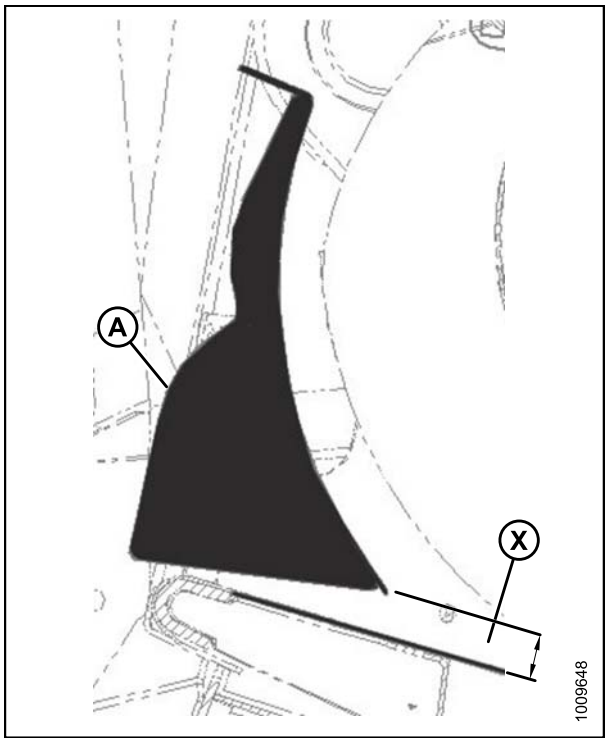


Figure 6.23: Existing Deflector

2. Remove two bolts (B) and nuts securing deflector (A) to adapter frame, and remove deflector.
3. Position replacement deflector, and secure with bolts (B) and nuts. Maintain dimension '**X**' from existing deflector for replacement deflector.
4. Repeat for opposite deflector.
5. After attaching header to combine, extend center-link fully, and check gap between deflector and pan. Maintain 7/8 in. (22 mm) +/- 1/8 in. (3 mm).

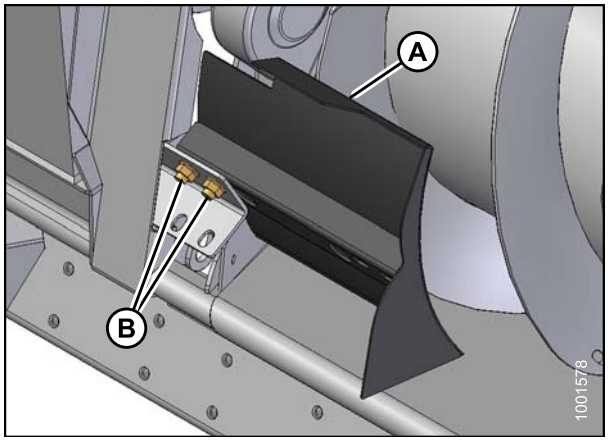


Figure 6.24: Replacement Deflector: Left-Hand Shown, Right-Hand Opposite

6.4 Attaching Header to Combine

The procedure for attaching the header to a combine varies depending on the combine model. See the table below for the appropriate procedure.

Combine	Refer to
AGCO Gleaner R and S Series, Challenger 660, 670, 680B, 540C, 560C, Massey 9690, 9790, 9895, 9520, 9540, 9560	*6.4.1 AGCO Combines, page 42*
Case IH 7010, 8010, 7120, 8120, 9120, 5088, 6088, 7088, 5130, 6130, 7130, 7230, 8230, 9230	*6.4.2 Case IH Combines, page 51*
John Deere 60, 70, and S Series	*6.4.3 John Deere Combines, page 56*
Lexion 500, 700 (R Series)	*6.4.4 Lexion Combines, page 63*
New Holland CR, CX	*6.4.5 New Holland Combines, page 78*

NOTE:

Kits are available to allow attachment to Case 23 and 25 Series combines, as well as John Deere 50 Series combines.

IMPORTANT:

Ensure applicable functions (Automatic Header Height Control [AHHC], Draper Header Option, Hydraulic Center-Link Option, Hydraulic Reel Drive, etc.) are enabled on the combine and in the combine computer. Failure to do so may result in improper header operation.

6.4.1 AGCO Combines

Installing Reel Fore-Aft/Header Tilt Selector Valve Switch and Harness

Gleaner Models:

NOTE:

Gleaner combines are NOT equipped to have hydraulic reel fore-aft and header tilt options.

The following additional items are required (*not supplied by MacDon): valve (A) (AGCO #71389745), hoses, electrical components, and couplers. (Converted AGCO unit shown at right.)

IMPORTANT:

To prevent possible damage to electronic components, disconnect the positive cable from the combine battery before connecting harness to combine connectors.

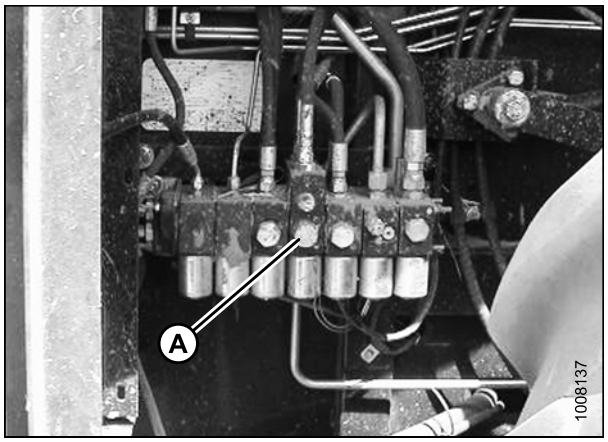


Figure 6.25: R72 Shown

1. Lay the harness (A) along the route from the front of the feeder house to the power point in the cab before attaching any cable ties. Ensure the harness will attach to the wiring at the selector valve with the header tilted forward, and that the feeder house can be fully lowered with adequate slack in the harness.

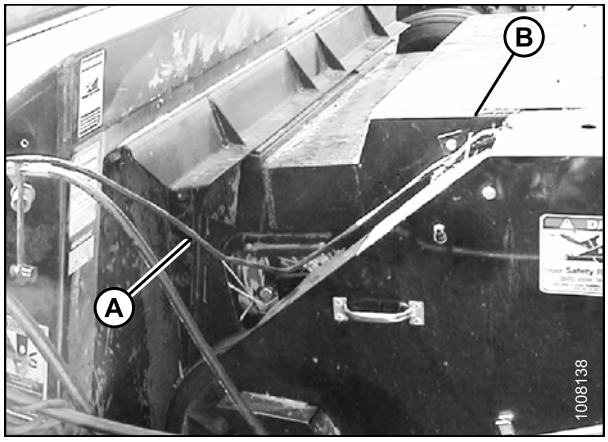


Figure 6.26: Switch Harness Routing

2. Use the cable ties provided to tie the switch harness (A) to main harness on left side of feeder house and under cab floor at (B).

IMPORTANT:

To prevent damage to harness, fully lower feeder house, and ensure there is adequate slack before cable tying harness at (B).

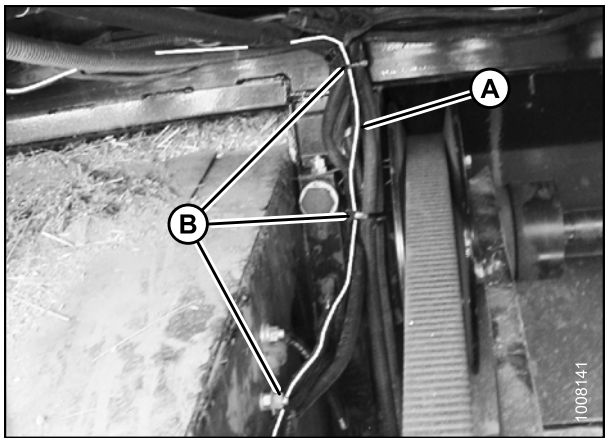


Figure 6.27: Left-Hand Side of Feeder House

3. Use the cable ties provided to tie the switch harness (A) to the main harness under cab floor at (B).
4. Route the switch harness (A) at the rear of the feeder house up to the underside of the cab floor at (B).

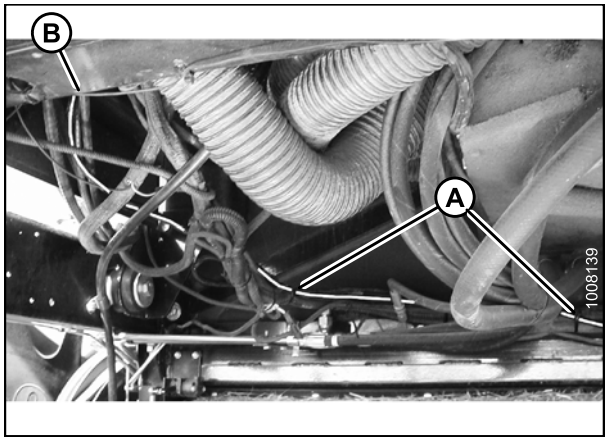


Figure 6.28: Harness Under Right-Hand Side of Cab Floor

5. Route harness (A) under cab, through cab floor into console (B) at foam seal (C).

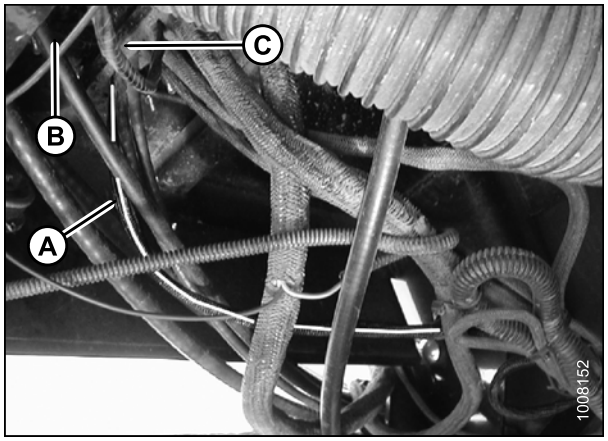


Figure 6.29: Harness through Cab Floor

6. Remove console cover (A) at right side window as shown.
7. Tap into power supply inside the console at (B).
   - The red wire from the inline fuse goes to the SWITCHED POWER SUPPLY (B).
   - The double black wire goes to an appropriate ground.

IMPORTANT:

Connecting the harness to an unswitched power supply or cigarette lighter adapter may drain the combine battery if the circuit is left powered (activating the header tilt side of the solenoid valve) during extended shutdown periods.

8. Route switch harness through grommet (C), and replace cover (A).

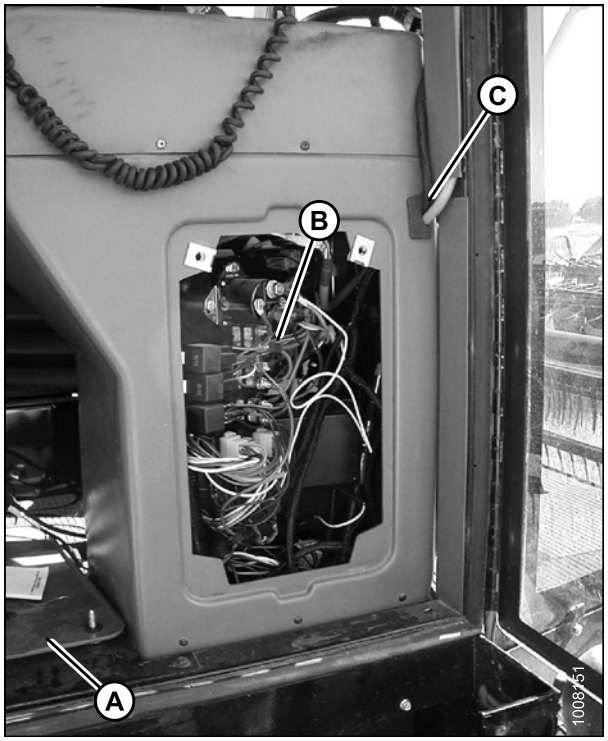


Figure 6.30: Switched Power Supply

9. Mount switch plate onto console (A) in a comfortable position. Attach the harness to the switch center terminal and either of the outer terminals as shown.
10. Reconnect the battery cable.
11. Operate the switch to select either REEL FORE-AFT or HEADER TILT function.

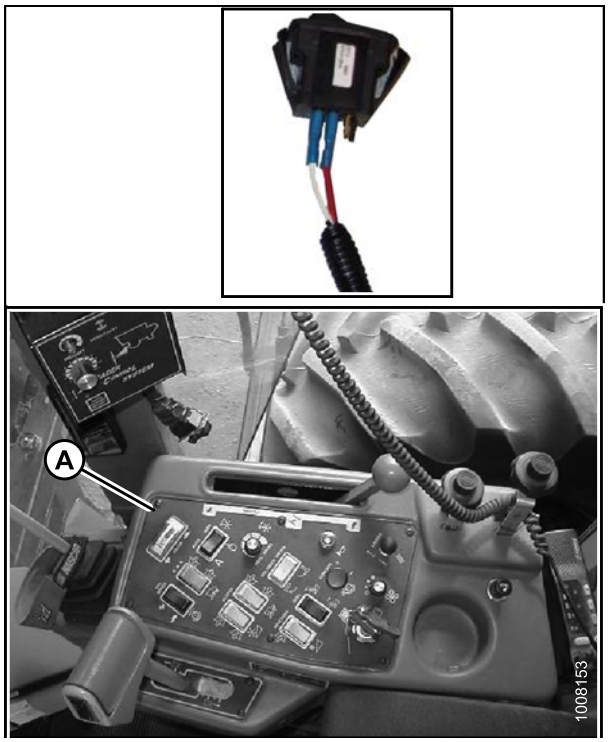


Figure 6.31: Switch and Console

Attaching Header to AGCO Combine

To attach the header to an AGCO combine, follow these steps:

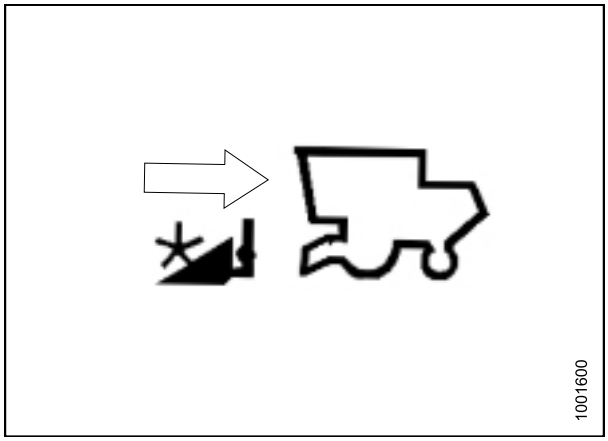


Figure 6.32: Attaching Header

1. Retract lugs (A) at base of feeder-house with lock handle (B).

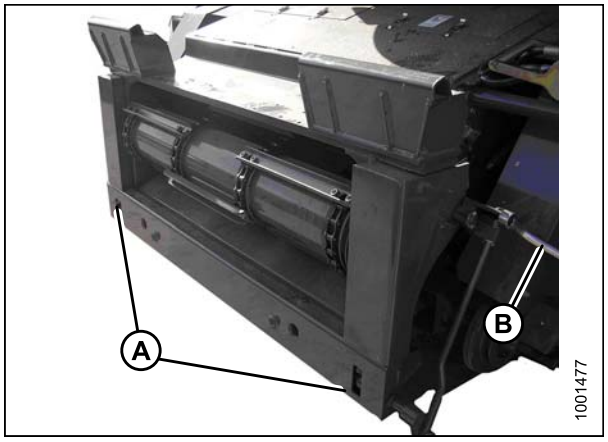


Figure 6.33: All AGCO except Gleaner R and S Series

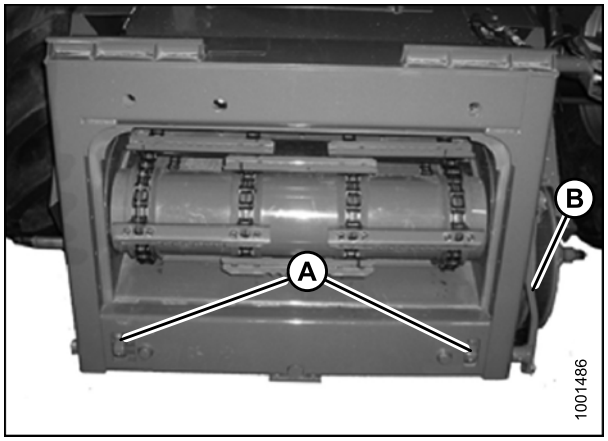


Figure 6.34: Gleaner R and S Series

2. Start engine, and slowly drive combine up to header until feeder house is directly under the adapter top cross member (A), and alignment pins (B) are aligned with holes (C) in adapter frame.

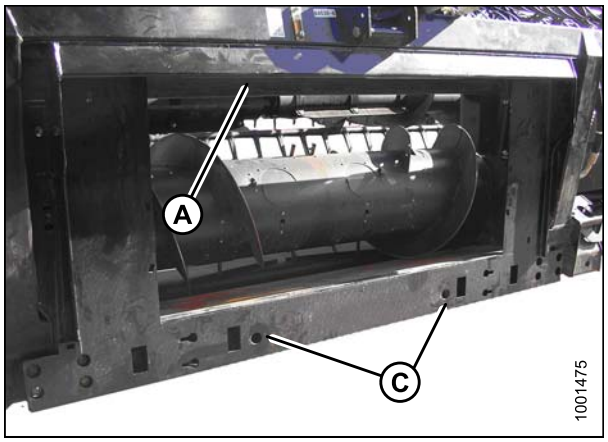


Figure 6.35: Adapter

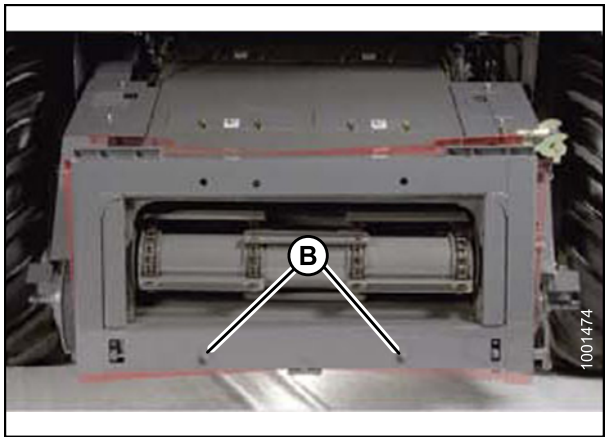


Figure 6.36: AGCO except Gleaner R and S Series and LL Models

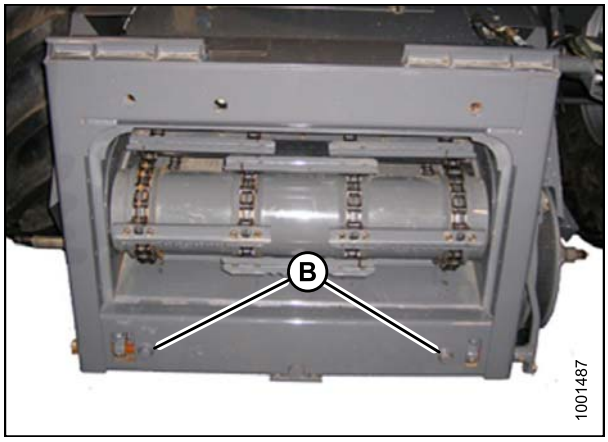


Figure 6.37: Gleaner R and S Series

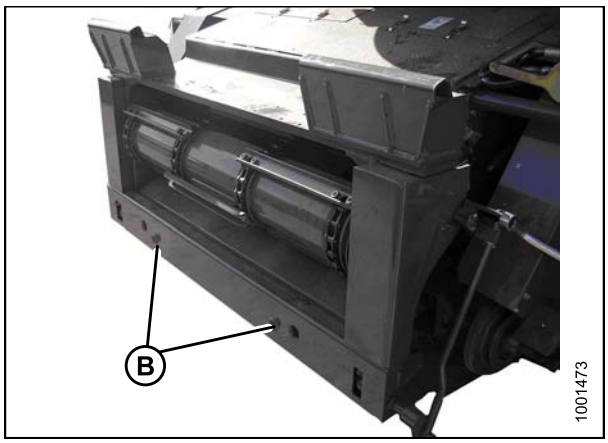


Figure 6.38: AGCO LL Model

3. Raise feeder house to lift header, ensuring feeder house saddle (A) and alignment pins are properly engaged in adapter frame.
4. Raise header slightly off the ground.

CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

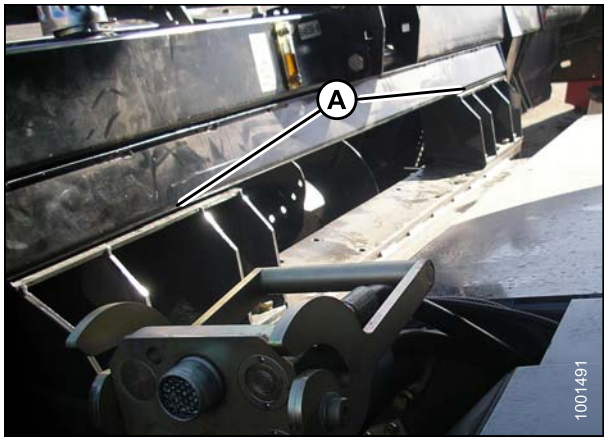


Figure 6.39: Feeder House and Adapter

5. Engage lugs (A) with adapter using lock handle (B).

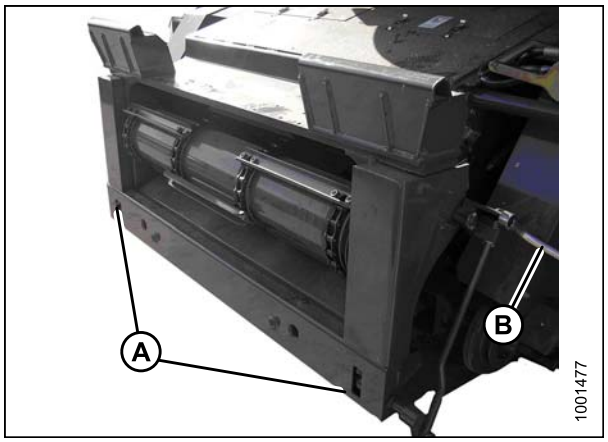


Figure 6.40: All AGCO except Gleaner R and S Series

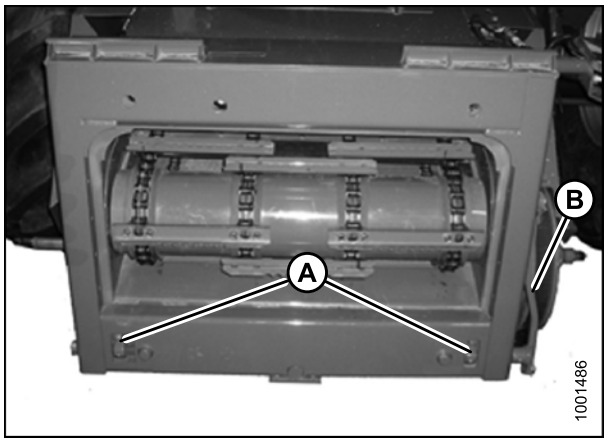


Figure 6.41: Gleaner R and S Series

6. Remove blocks from under cutterbar.
7. Start engine, and lower header. Shut down the combine.

NOTE:

The CA25 Combine Adapter is equipped with a multicoupler that connects to the combine. If your combine is equipped with individual connectors, a multicoupler kit (single-point connector) must be installed. The kits are available through your AGCO Dealer and include installation instructions.

Table 6.2 Multicoupler Kits

Combine	AGCO Kit Number
Challenger	71530662
Gleaner R/S Series	71414706
Massey Ferguson	71411594

8. Raise handle (A) to release coupler (B) from adapter.

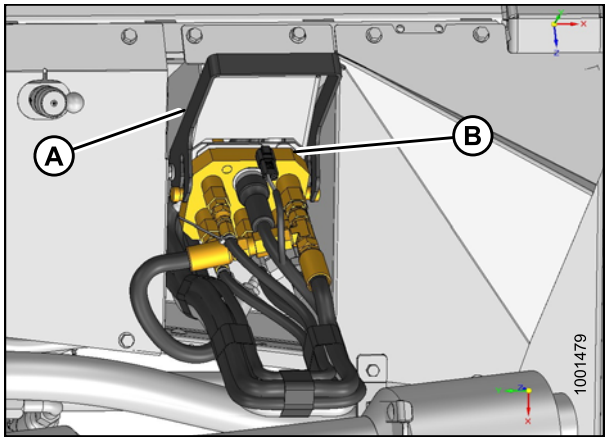


Figure 6.42: Adapter Coupler

9. Push handle (A) on combine to full open position.
10. Clean mating surfaces of coupler (B) and receptacle if necessary.

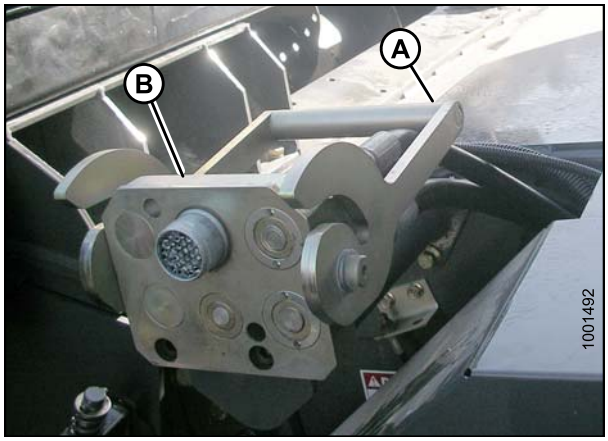


Figure 6.43: Combine Receptacle

11. Position coupler (A) onto combine receptacle, and pull handle (B) to fully engage coupler into receptacle.
12. Connect reel fore-aft/header tilt selector harness (C) to combine harness (D).

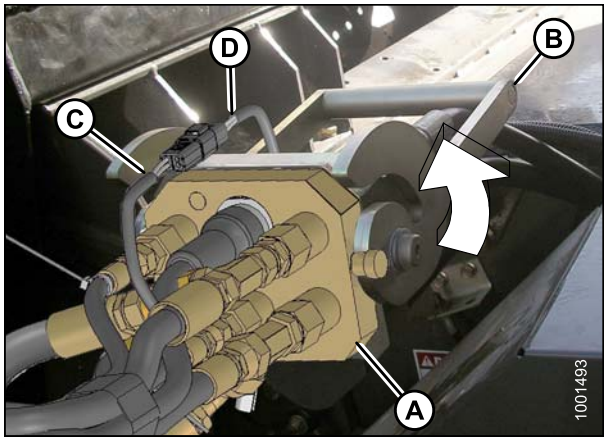


Figure 6.44: Coupler

13. Remove shipping wire from driveline and float lock lever.

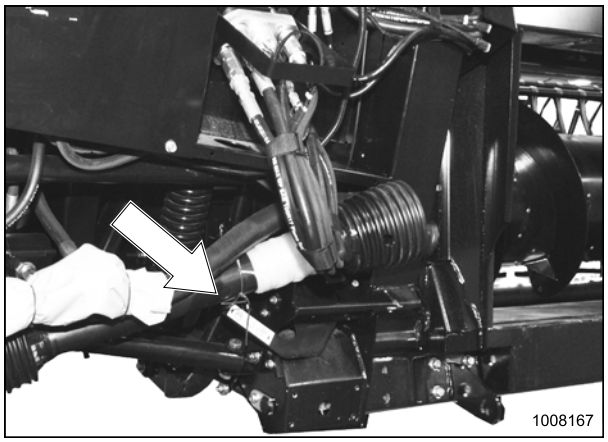


Figure 6.45: Shipping Wire on Driveline and Float Lock Lever

14. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.

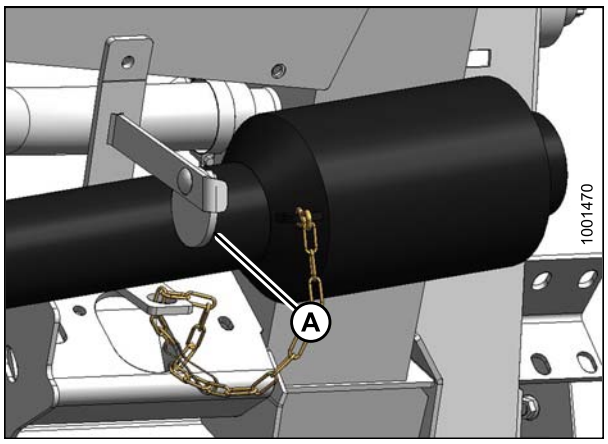


Figure 6.46: Driveline

15. Pull back collar (A) on end of driveline, and push onto combine output shaft (B) until collar locks.

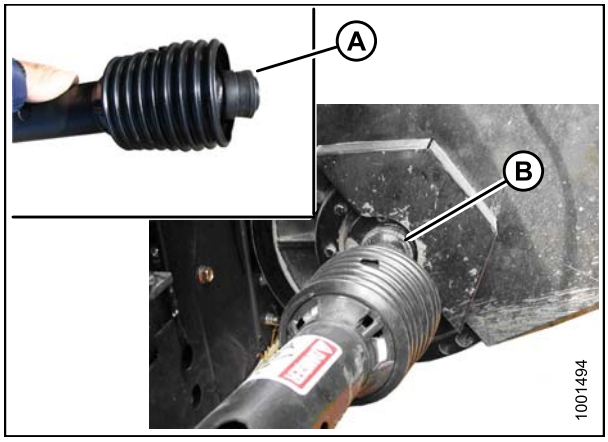


Figure 6.47: Driveline

16. Proceed to *6.5 Attaching Cam Arms, page 82*.

6.4.2 Case IH Combines

Attaching Header to Case IH Combine

To attach the header and adapter to a Case IH combine, follow these steps.

1. Remove nut (A) and flip lever (B) horizontally on the combine adapter.

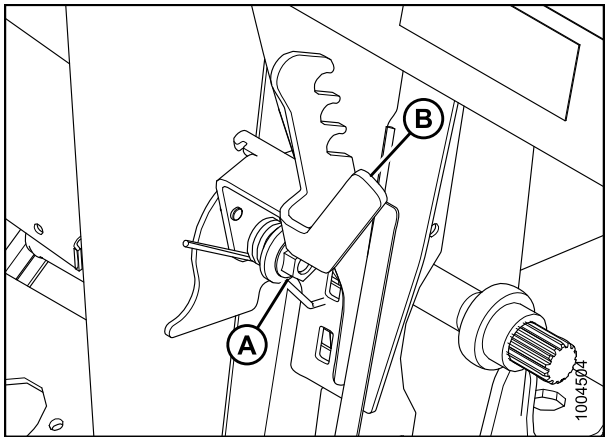


Figure 6.48: Combine Adapter Left-Hand Side

2. Place lever (B) onto stud. Place spring arm into hook on lever (B) to preload it. Tighten nut (A) onto the combine adapter.

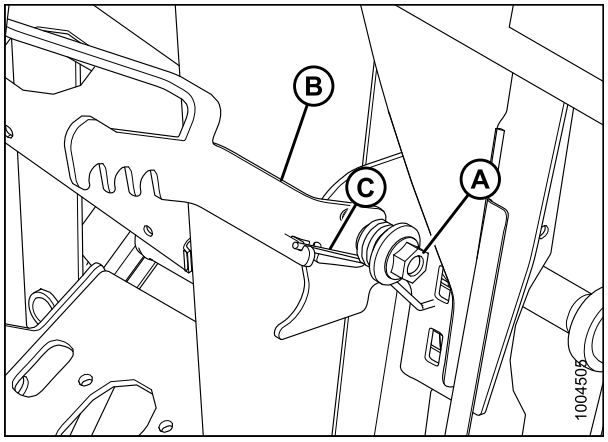


Figure 6.49: Combine Adapter Left-Hand Side

3. Start engine and slowly drive combine up to header until feeder house saddle (A) is directly under the adapter top cross member (B).
4. Raise feeder house slightly to lift header, ensuring feeder saddle is properly engaged in adapter frame.

CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

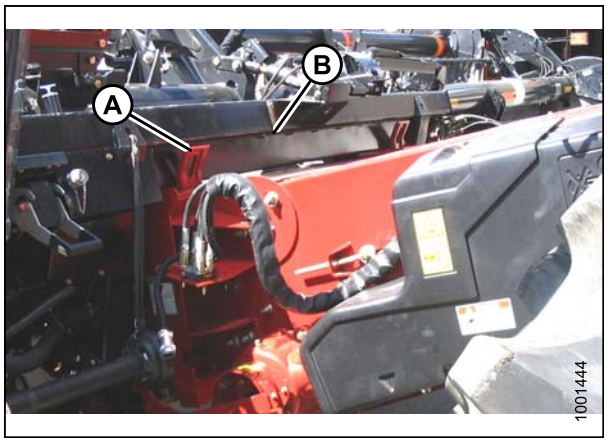


Figure 6.50: Combine and Adapter

5. Lift lever (A) on adapter at left side of feeder house, and push handle (B) on combine to engage locks (C) on both sides of the feeder house.
6. Push down on lever (A) so that slot in lever engages handle to lock handle in place.
7. If lock (C) does not fully engage pin on adapter when lever (A) and handle (B) are engaged, loosen bolts (D), and adjust lock as required. Retighten bolts.

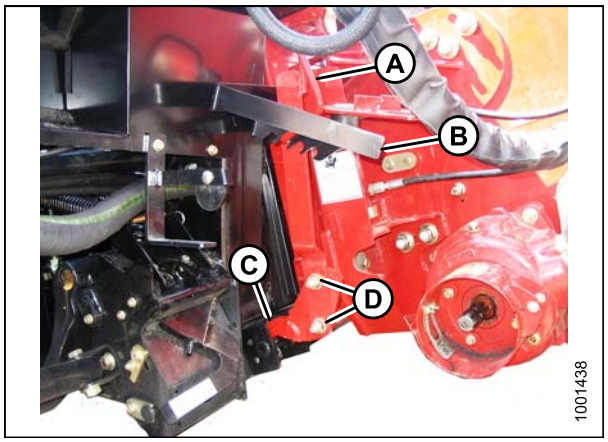


Figure 6.51: Combine and Adapter

8. Open cover (A) on header.
9. Push in lock button (B), and pull handle (C) to full open position.
10. Clean coupler on header.

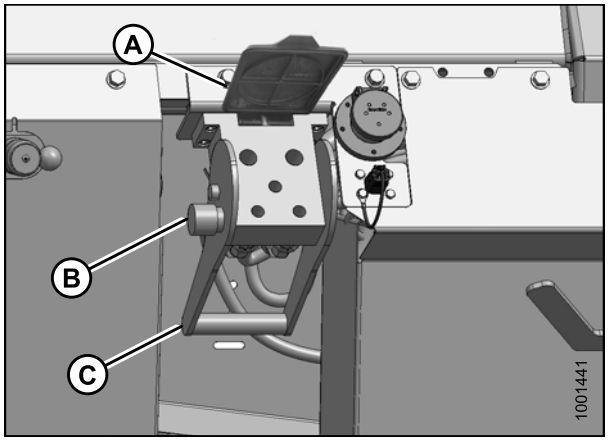


Figure 6.52: Hydraulic Receptacle

11. Remove coupler (A) from combine, and clean mating surfaces.

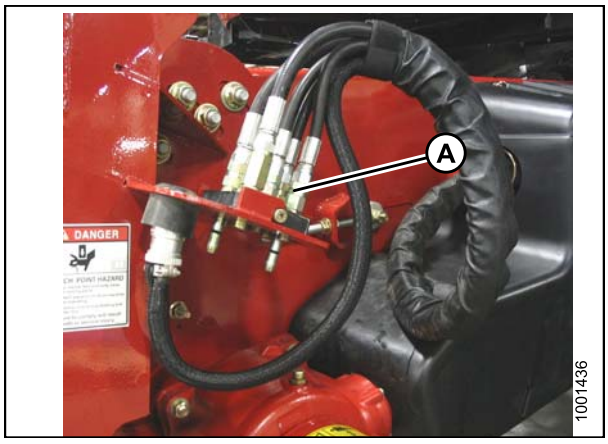


Figure 6.53: Combine

12. Position onto header receptacle (A), and push handle (B) to engage coupler pins into receptacle. (Handle (B) is just out of view in the image)
13. Push handle (B) to closed position until lock button (C) snaps out.

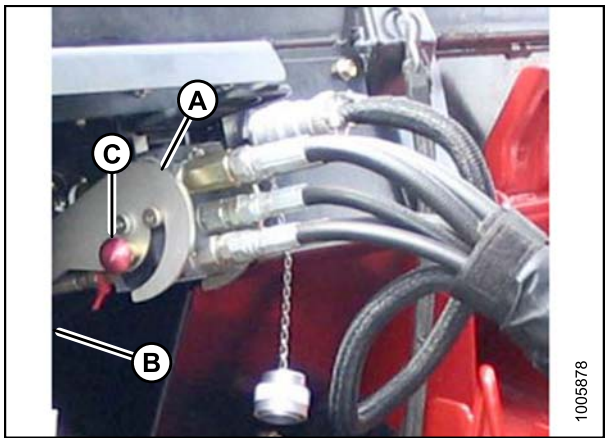


Figure 6.54: Hydraulic Connection

14. Remove cover on electrical receptacle (A). Ensure receptacle is clean and has no sign of damage.

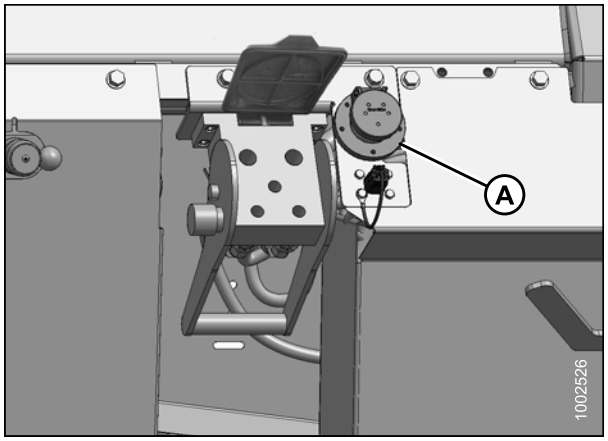


Figure 6.55: Electrical Receptacle

15. Remove electrical connector (A) from storage cup on combine, and route to adapter receptacle.

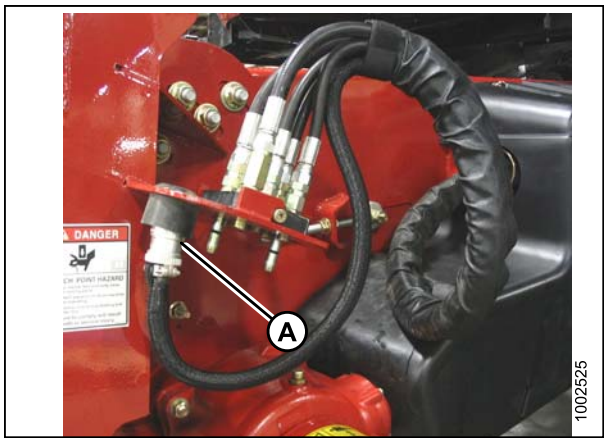


Figure 6.56: Combine

16. Align lugs on connector (A) with slots in receptacle (B), push connector onto receptacle, and turn collar on connector to lock it in place.

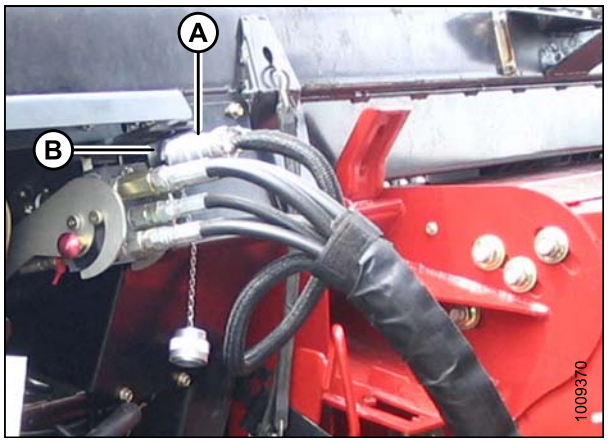


Figure 6.57: Electrical Connection

17. Remove shipping wire from driveline and float lock lever.

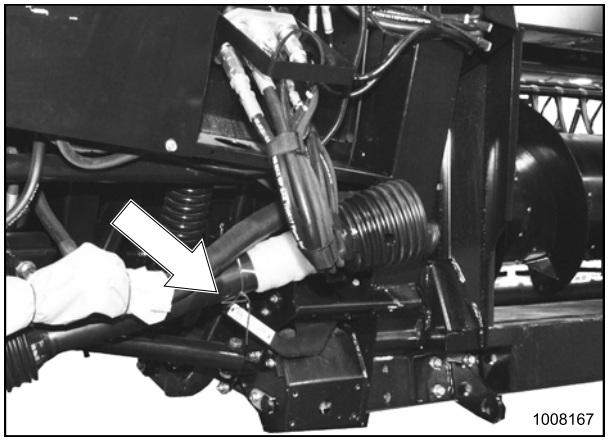


Figure 6.58: Shipping Wire on Driveline and Float Lock Lever

18. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.

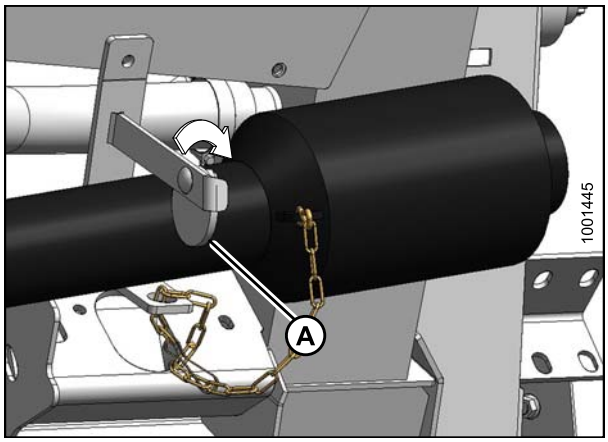


Figure 6.59: Disc on Adapter Driveline Storage Hook

19. Pull back collar (A) on end of driveline, and push onto combine output shaft (B) until collar locks.

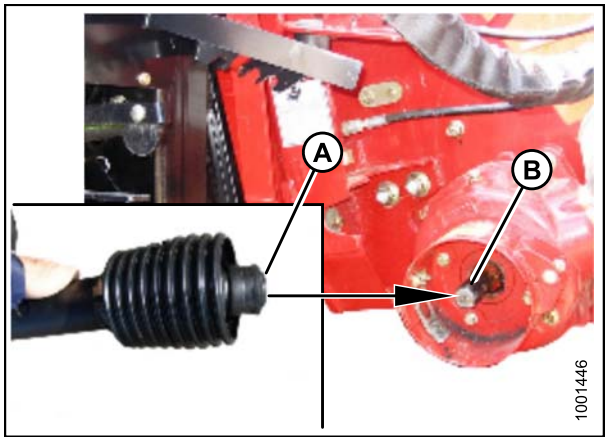


Figure 6.60: Combine Output Shaft

20. Disengage both adapter float locks by moving latch (A) away from adapter, and moving lever (B) at each lock to lowest position.

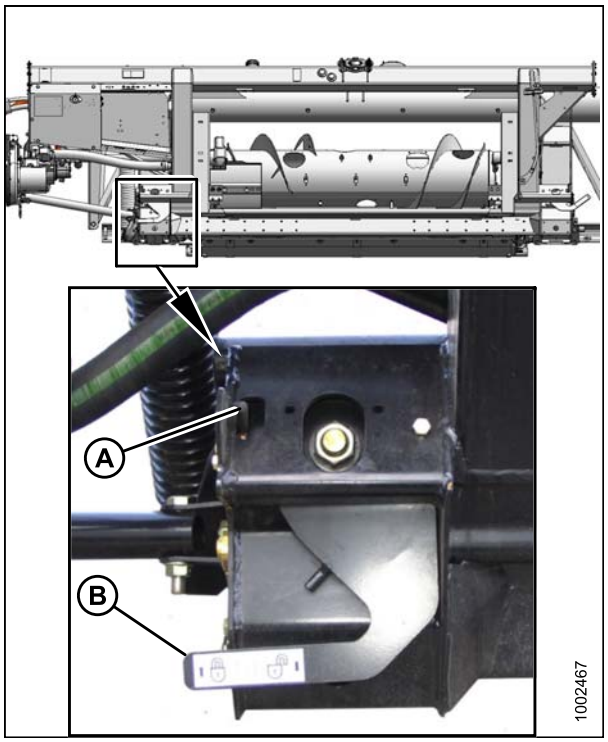


Figure 6.61: Float Lock

21. Proceed to *6.5 Attaching Cam Arms, page 82*.

6.4.3 John Deere Combines

Installing Reel Fore-Aft/Header Tilt Switch

The switch allows the combine Operator to select either reel FORE-AFT or HEADER TILT mode (if hydraulic center-link is installed).

This step is applicable to all John Deere S-series combines ONLY.

Prepare the combine cab for installing the switch and harness as follows:

1. Open storage compartment on the console.
2. Remove the two screws (A) attaching compartment cover (B) to the console, and remove cover.

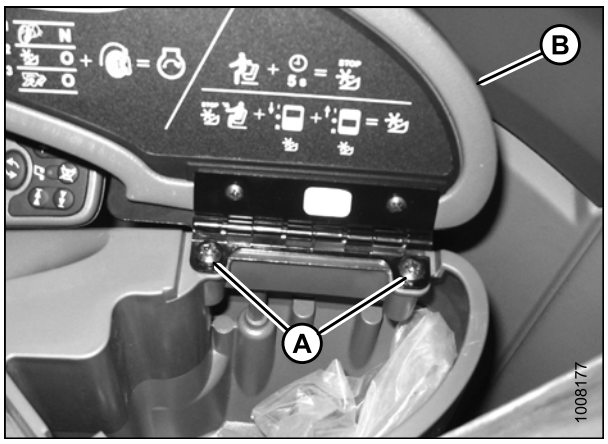


Figure 6.62: Storage Compartment and Cover

3. Lift floor mat (A) at forward right corner to expose knockout (B). Prop the floor mat for access to the knockout.
4. Remove the knockout (B).

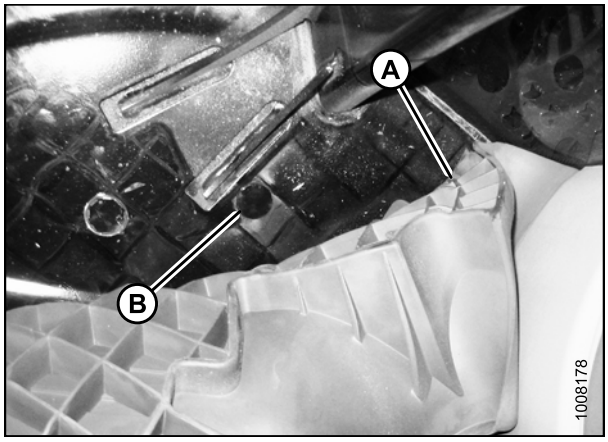


Figure 6.63: Floor Mat at Forward Right Corner, and Knockout

5. Retrieve switch (A), harness, and support (B) provided with kit.
6. Install switch (A) into support (B) from the top. Ensure lugs on underside of support have secured switch.

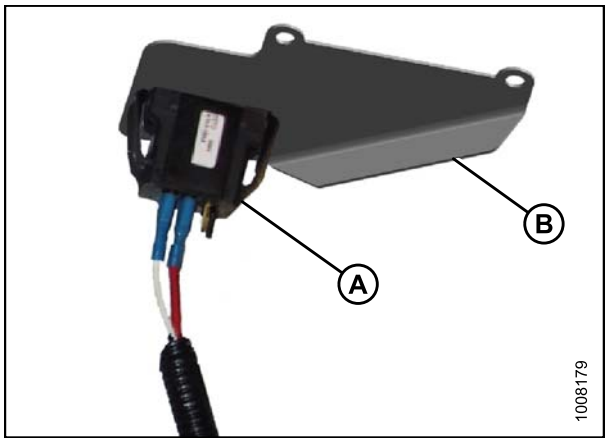


Figure 6.64: Switch and Harness

7. Connect switch end (A) of harness to switch (B) with red wire to center terminal, and white to either outer terminal.

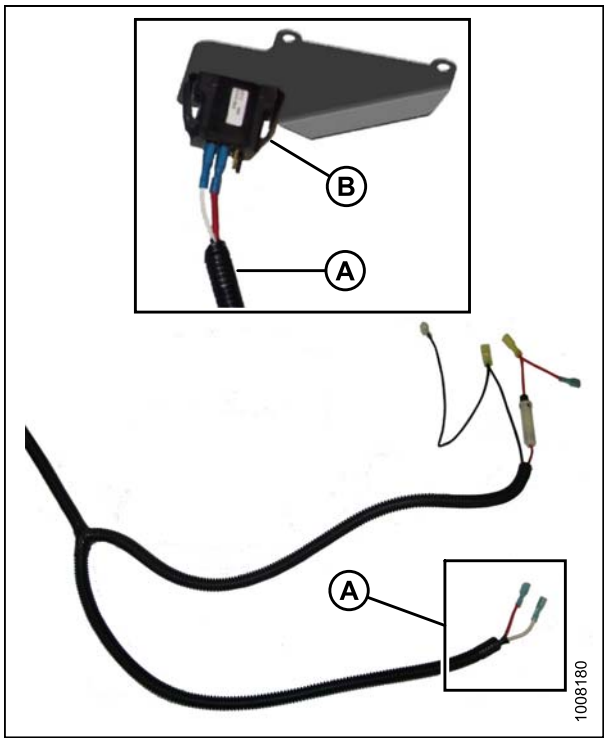


Figure 6.65: Switch End of Harness and Switch

8. Position support (C) onto console, and align holes in support with holes in console.
9. Reinstall cover (B) with existing screws (A).

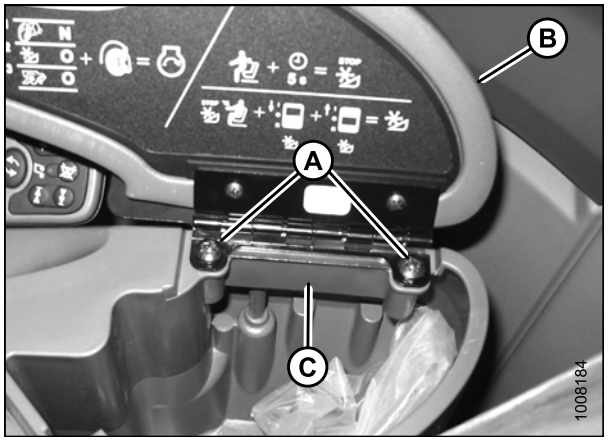


Figure 6.66: Support Position on Console

10. Close cover, and check security of switch (A) and support (B).

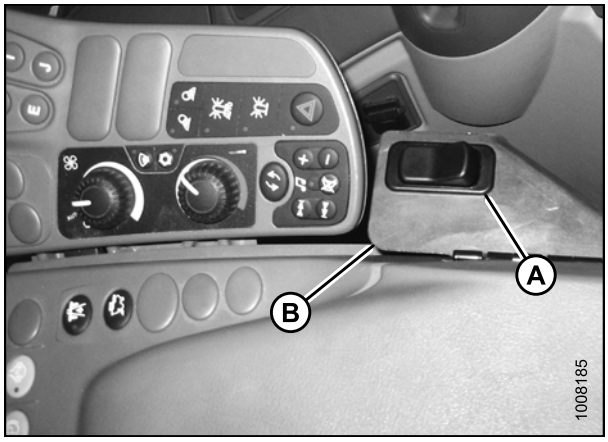


Figure 6.67: Secured Switch

11. Connect feed end (A) of harness to cigarette lighter adapter (not shown).

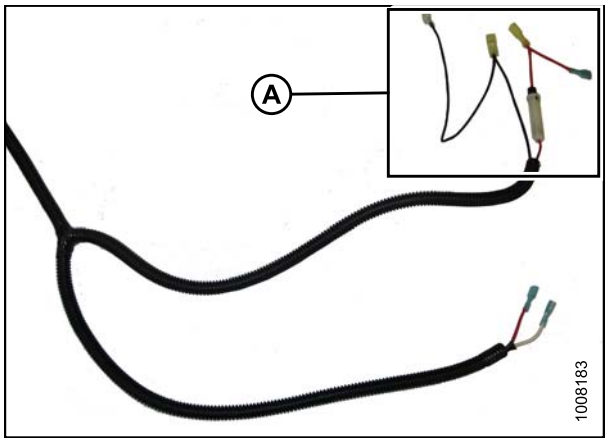


Figure 6.68: Feed End of Harness

12. Route plug end (A) of harness through hole (B) in cab floor, and feed entire length to outside the cab. Leave some slack in the cab to allow for console adjustment.
13. Replace floor mat.

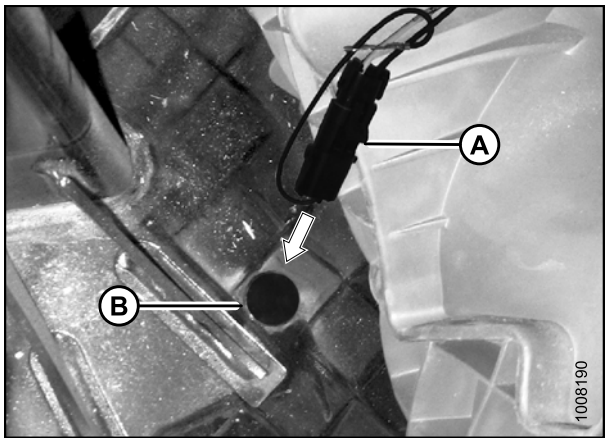


Figure 6.69: Plug End of Harness

14. Route harness (A) along existing hoses under the cab to left side of the feeder house and to the multicoupler (B). Route harness under hose shield (C).
15. Secure harness to hoses with plastic cable ties as required.

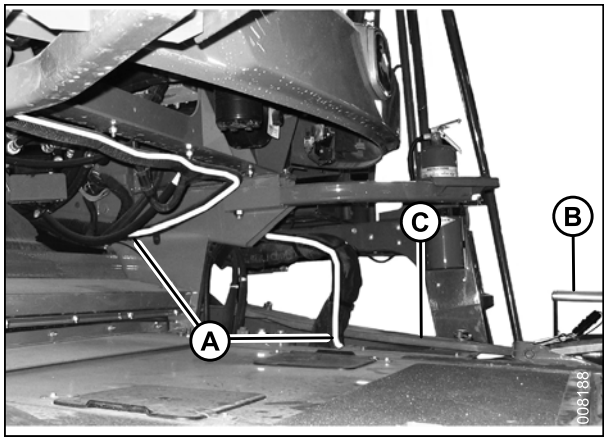


Figure 6.70: Harness and Feeder House Multicoupler

Attaching Header to John Deere Combine

To attach the header to a John Deere combine, follow these steps.

1. Push handle (A) on combine coupler receptacle toward feeder house to retract pins (B) at bottom corners of feeder house. Clean receptacle.
2. Start engine and slowly drive combine up to header until feeder house saddle (C) is directly under the adapter top cross member (D).
3. Raise feeder house to lift header, ensuring feeder saddle is properly engaged in adapter frame.
4. Raise or lower header until slightly off the ground.

⚠ CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

5. Stop engine and remove key from ignition.
6. Pull handle (A) on adapter to release coupler (B) from storage position. Remove coupler, and push handle back into adapter to store.

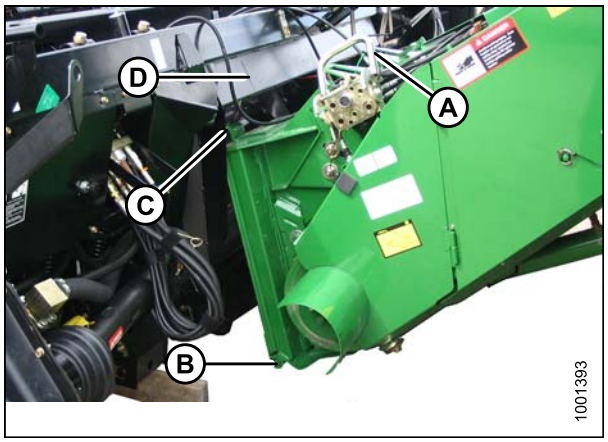


Figure 6.71: Combine and Adapter

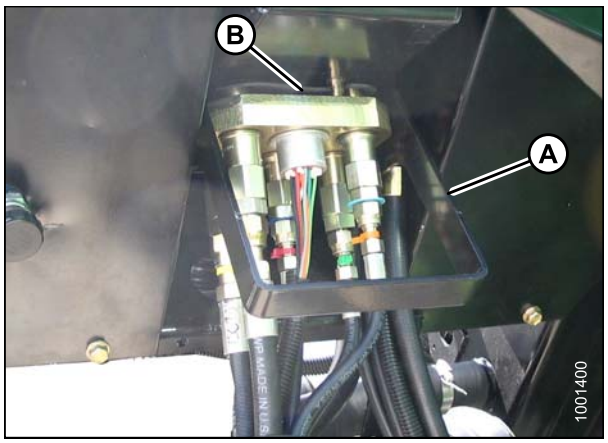


Figure 6.72: Coupler Storage

7. Position coupler (A) onto receptacle, and pull handle (B) so that lugs on coupler are engaged into handle.
8. Pull handle (B) to full horizontal position to fully engage coupler (A) into receptacle and the two feeder house pins (C) into adapter brackets.
9. Check that bolts (D) are tight.

NOTE:

If pins (C) do not fully engage adapter brackets, loosen bolts (D) and adjust bracket as required. Retighten bolts.

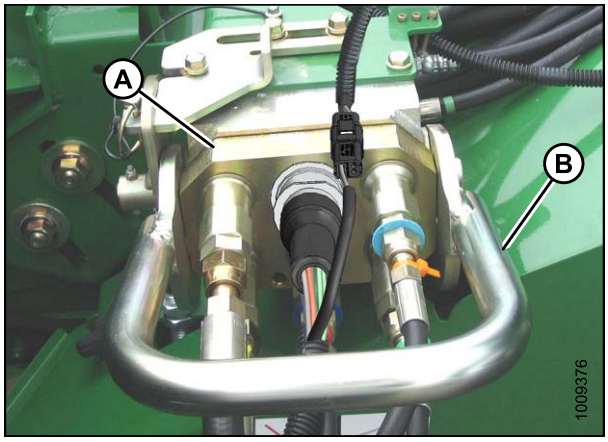


Figure 6.73: Coupler

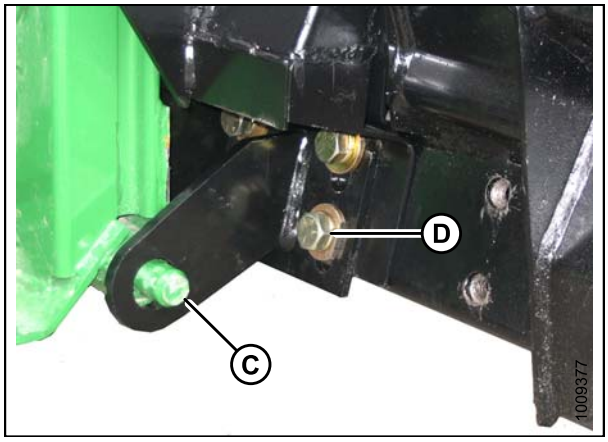


Figure 6.74: Feeder House Pin

10. Slide latch (A) to lock handle (B) in position, and secure with lynch pin (C).
11. If adapter is equipped with reel fore-aft/header tilt selector, connect harness (D) to combine connector (E).

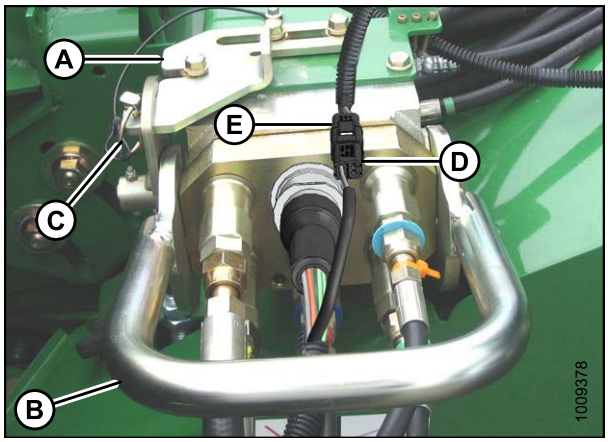


Figure 6.75: Coupler

12. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.

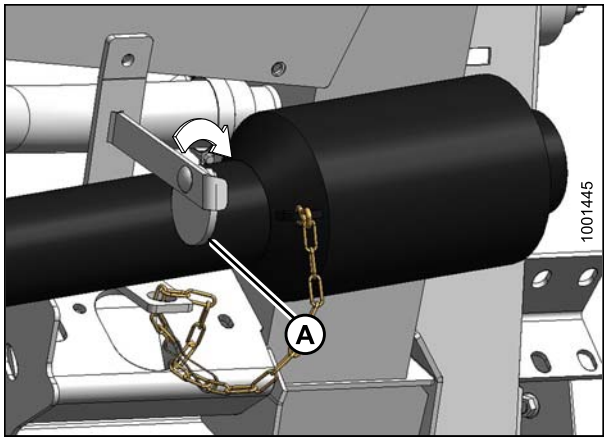


Figure 6.76: Driveline

13. Pull back collar (A) on end of driveline, and push onto combine output shaft (B) until collar locks.

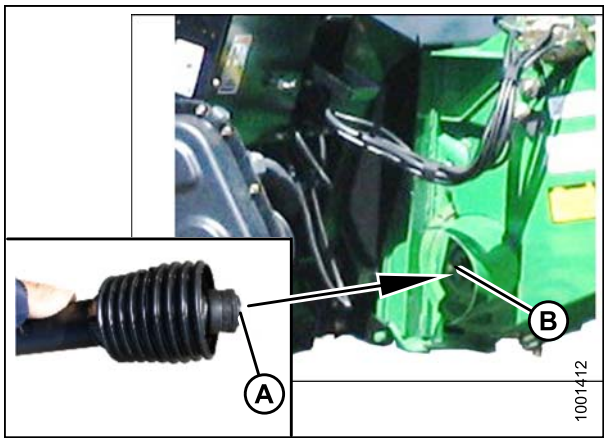


Figure 6.77: Driveline

14. Proceed to *6.5 Attaching Cam Arms, page 82*.

6.4.4 Lexion Combines

500 Series: Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness

1. Remove storage tray (A) from console.

Figure 6.78: Console Tray

2. Remove 13 mm hex nut (A) and washer from under combine monitor (front of console) as shown.

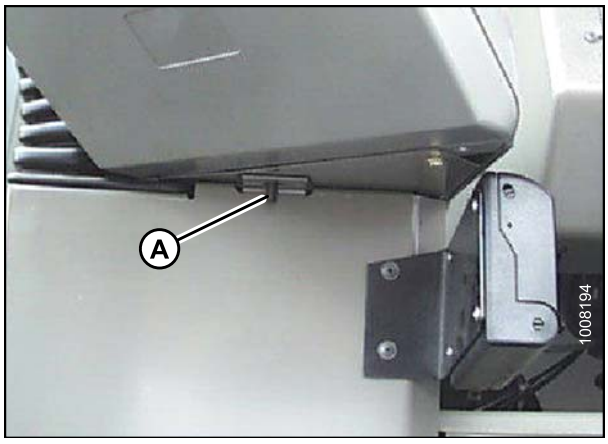


Figure 6.79: Combine Monitor

3. Tilt console (A) back.

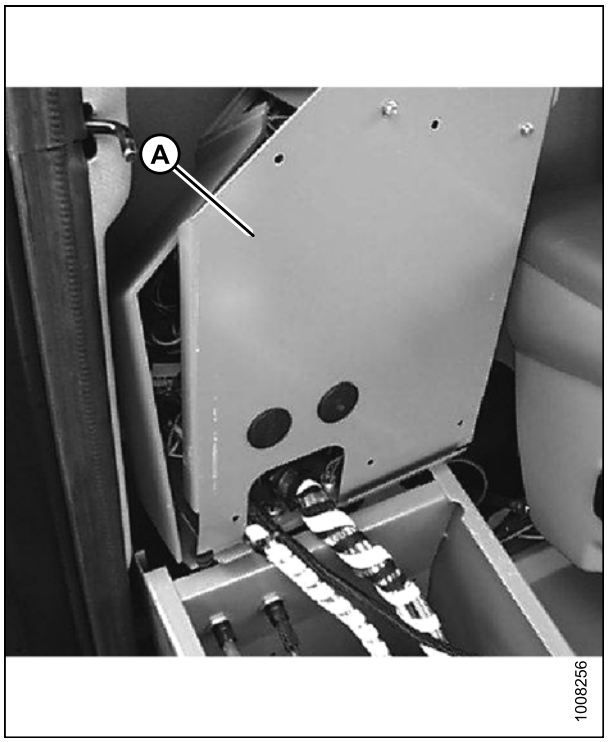


Figure 6.80: Tilted Console

4. Remove the plug (A) from cab floor under console. Install adapter connector through hole, and route harness through hole. Cut a slit in the rubber floor plug (A). Slide plug over wiring harness.

NOTE:

Maintain some wire slack to prevent damage to harness.

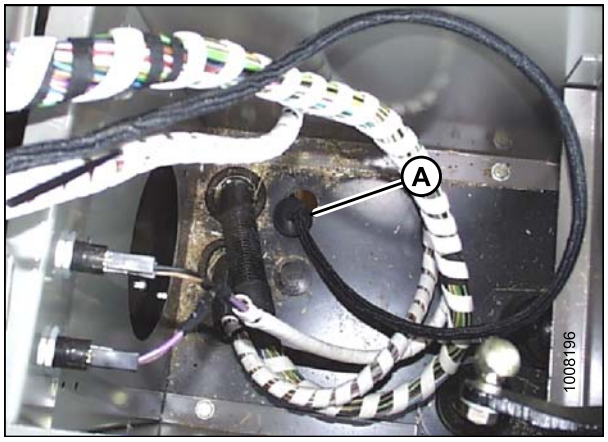


Figure 6.81: Harness through Hole in Floor

5. Remove five screws (A) as shown to access wiring connections underneath console.

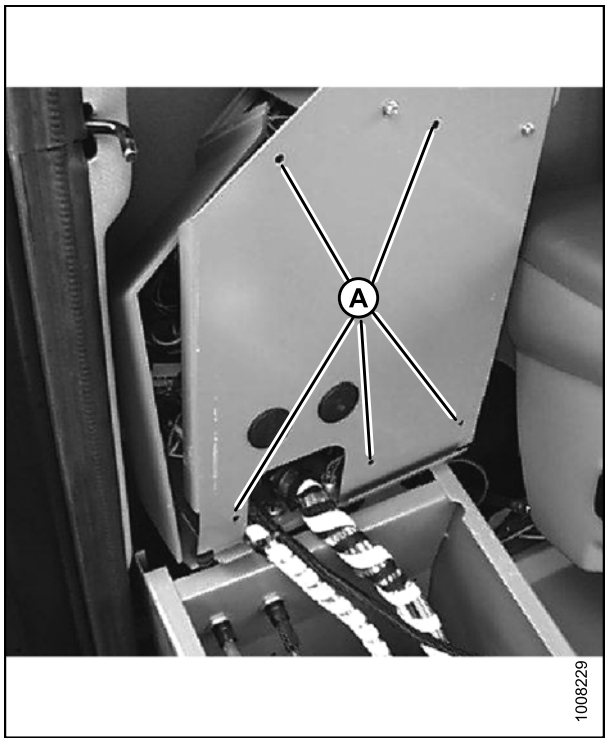


Figure 6.82: Five Screws in Console

6. Remove switch plug (A) from top side of console at location shown, and push switch connector through backside of console at (A) (refer to *8., 500 Series: Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness, page 67*).

Figure 6.83: Switch Plug in Console

7. Connect switch (A) to harness (red and white wires), and snap switch (A) into place.

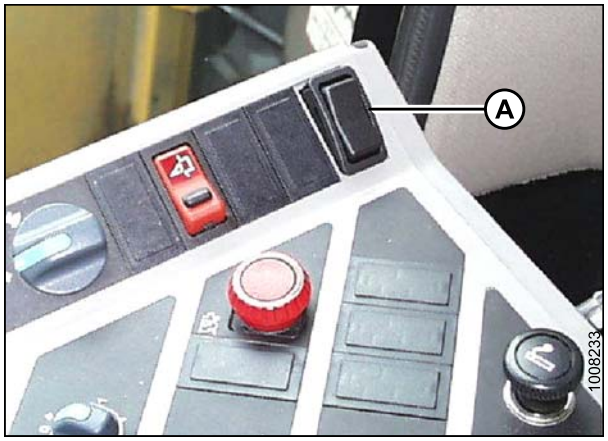


Figure 6.84: Switch in Place

(In illustration opposite, rocker switch has been removed from console for clarity.)

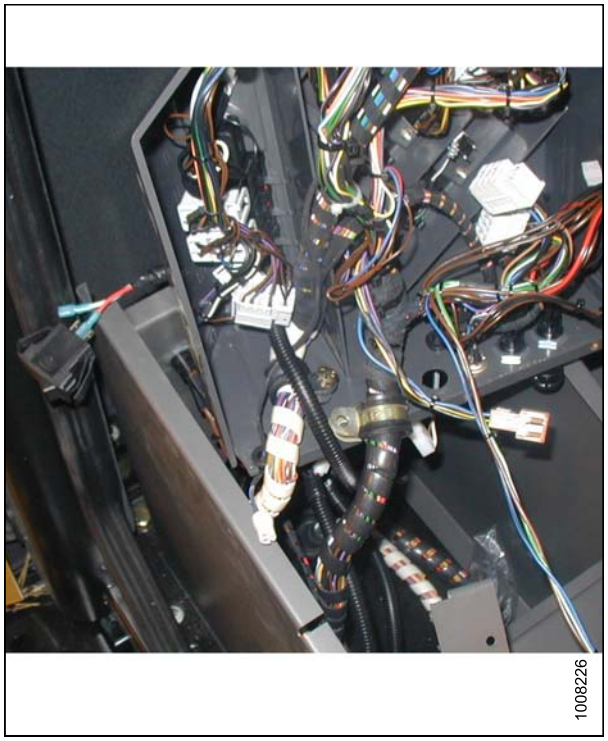


Figure 6.85: Console

8. Attach switch harness to existing wires at (A) using cable tie.

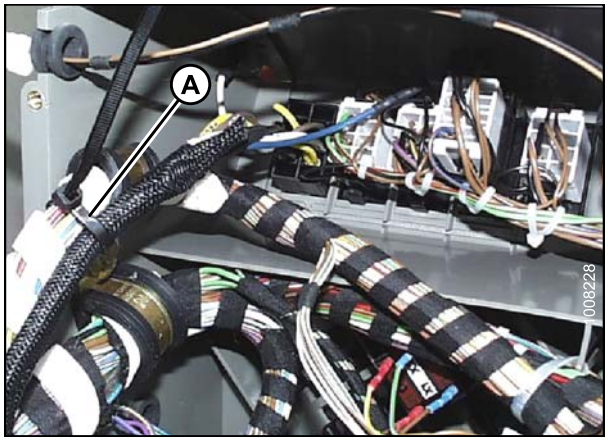


Figure 6.86: Cable Ties, Harness and Existing Wires

9. Reinstall plug (A) in floor. Return switch console to its original position, and tilt console back. Replace the five screws that were removed in Step *5., 500 Series: Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness, page 65*.

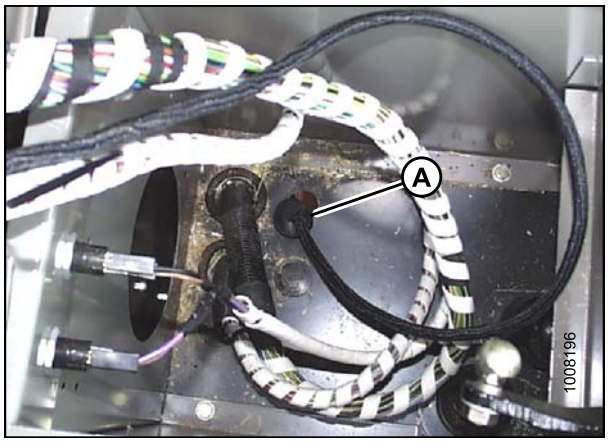


Figure 6.87: Plug in Floor

10. **For Two Individual Connector Hookups**

    a. Remove the brown wire (A) from power source under console. Replace it with the black wire (B).

    b. Then remove the black wire from the power source, and replace it with the red wire (C).

    c. Attach the wires removed from the switch (brown and black) to the wires coming from harness.

    d. Ensure that wires are attached properly (black to black, and brown to red).

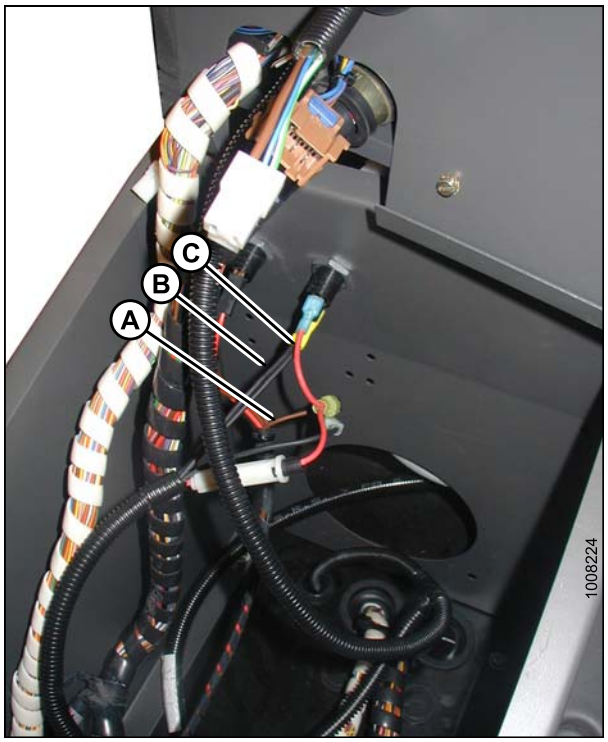


Figure 6.88: Two Individual Connector Hookups

NOTE:

Remove the insulation from the male blades from the wire harness so they attach to plug (A).

11. **For One Individual Connector Hookup**

    a. Remove the white plug (A) with brown and black wire from power source under console.

    b. Replace the white plug with the black wire (B) on the top terminal, and red wire (C) to bottom terminal.

    c. Attach the white plug to the remaining wires coming from harness. Ensure that wires are properly attached (black to black, and brown to red).

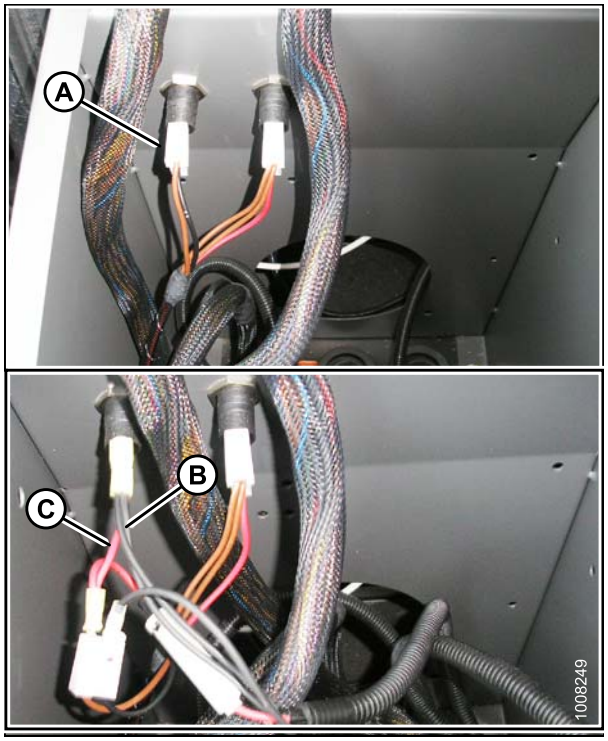


Figure 6.89: One Individual Connector Hookup

12. Return console to its original position, and install the washer and 13 mm hex nut (A), removed in Step *2., 500 Series: Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness, page 63*.

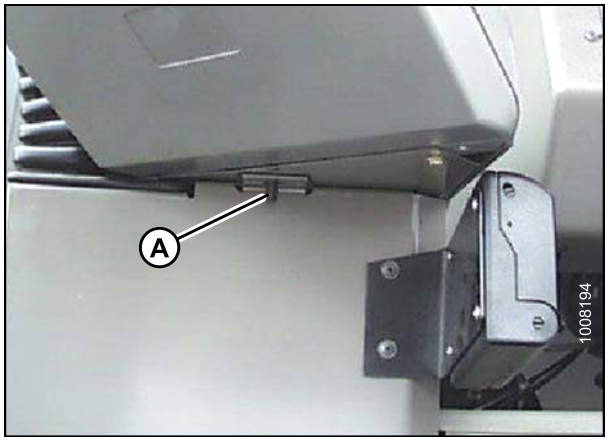


Figure 6.90: Combine Monitor in Original Position

13. Route wiring harness (A) underneath cab floor. To prevent it from being damaged, place harness in steel tray (B) along underside of cab floor.

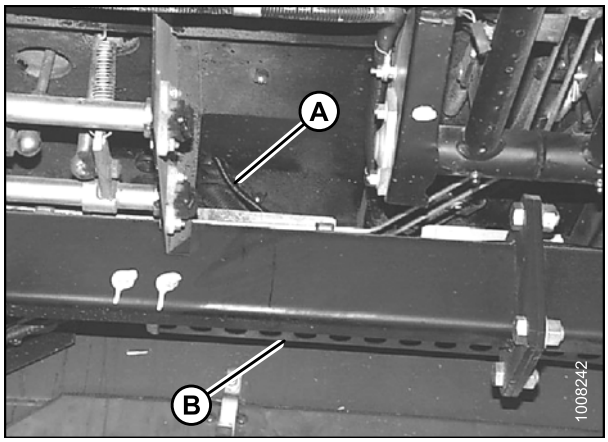


Figure 6.91: Harness Underneath Cab Floor

14. Route wiring harness (A above) between left end of steel tray (B above) and conduit (A) between floor and frame as shown at (B).

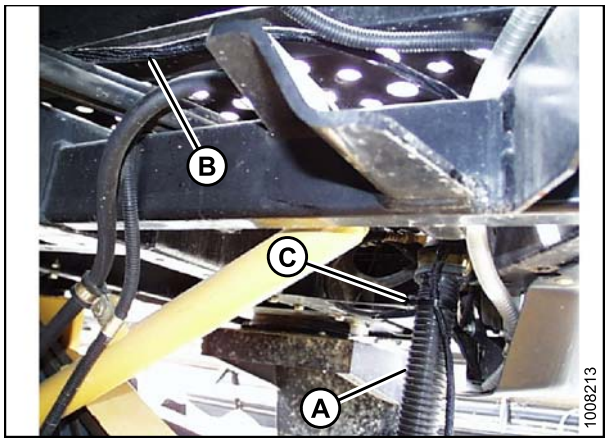


Figure 6.92: Harness Between Steel Tray and Conduit

A - Conduit
B - Routing Location
C - Cable Tie

15. Use cable ties at (A) to secure wiring harness (A above) to conduit (B).

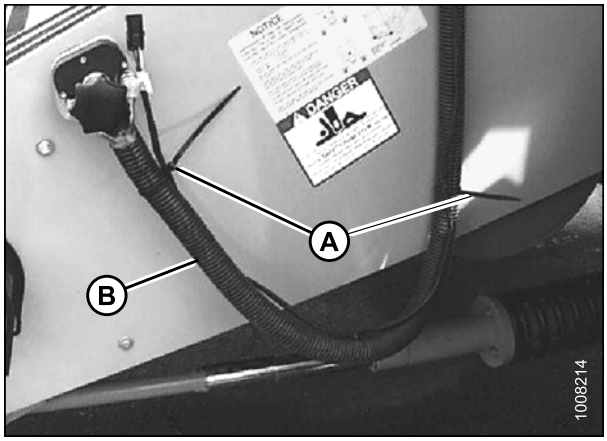


Figure 6.93: Cable Ties, Harness, and Conduit

700 Series: Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness

1. Remove two screws (A) from information system operator's panel, and remove panel to access compartment.
2. Rotate console up to expose the underside of the console to make it easier to insert wire harness.
3. Pull tab (B) up to unlatch console.

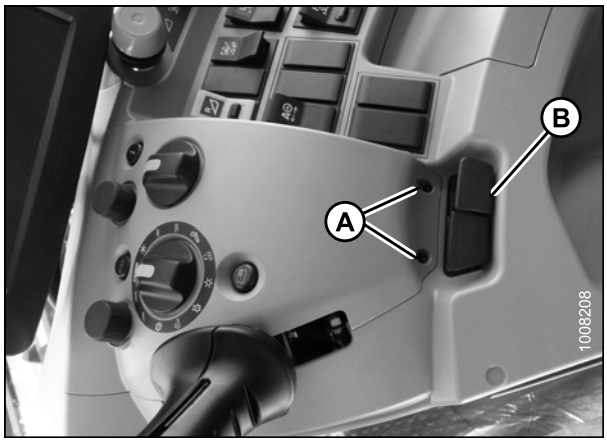


Figure 6.94: Console

4. Insert wire through bottom of console alongside wire (A) that goes to the CEBIS monitor.

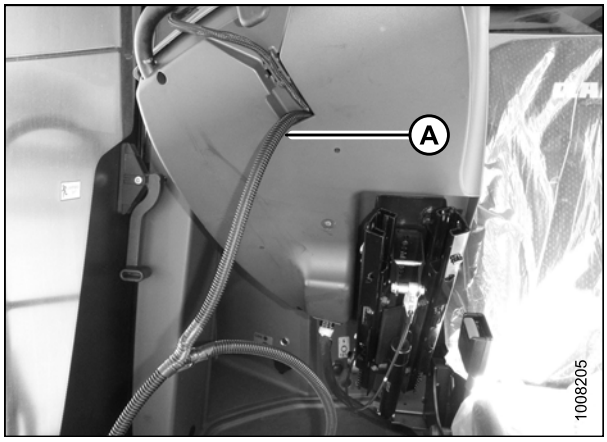


Figure 6.95: Bottom of Console

5. Locate wire from the panel that was previously removed. Remove blank cap from machine operator panel at (A). Run wire through opening, attach wire to switch, and insert switch into panel.

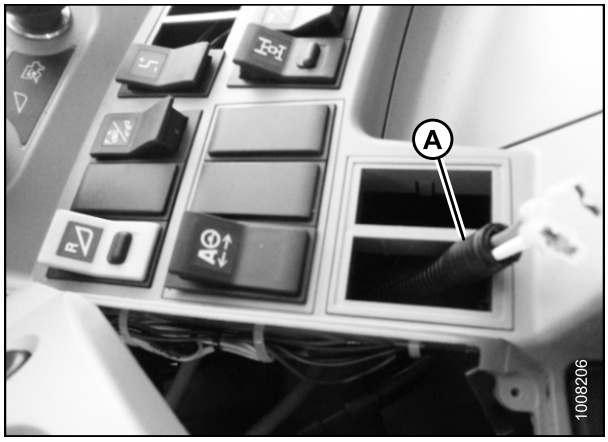


Figure 6.96: Switch and Console

6. Secure the switch (A) into the console, and screw down the information panel.
7. Pull back the slack on the wire harness, and cable tie it to the wire harness running to CEBIS monitor (Refer to Step *4., 700 Series: Installing Reel Fore-Aft/Header Tilt Selector Switch and Harness, page 70*).

NOTE:

If LASER PILOT is used, select the blank plug next to (A).

Figure 6.97: Switch in Console

8. Locate the terminal compartment (A) on the floor at the right hand side of the cab. Remove lid to access the 12 volt switched power.

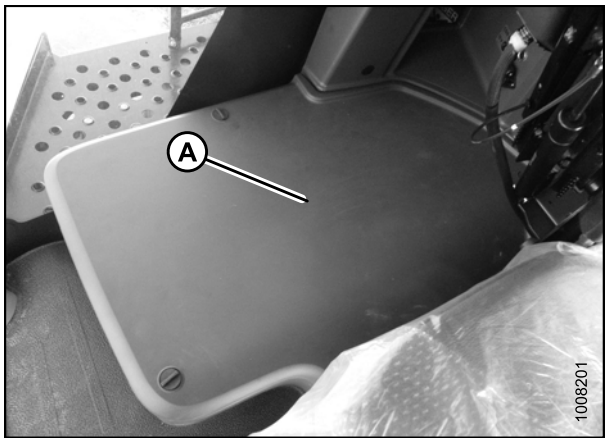


Figure 6.98: Lid of Terminal Compartment

9. Locate the single-wire harness (A) that provides switch power.
   a. Remove the insulation from the two male blades on the MacDon wire harness.
   b. Attach red wire in (B) to brown wire in plug (C), and connect black wire in (C) to black wire in plug (A).

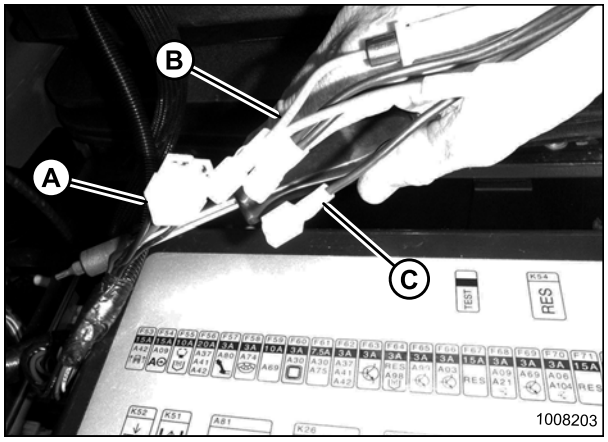


Figure 6.99: Wire Harness

10. Make a harness exit hole to the left side of the box at (A) in one of the blank covers.
11. Route the two prong wire black/white connector of the MacDon harness through the hole.

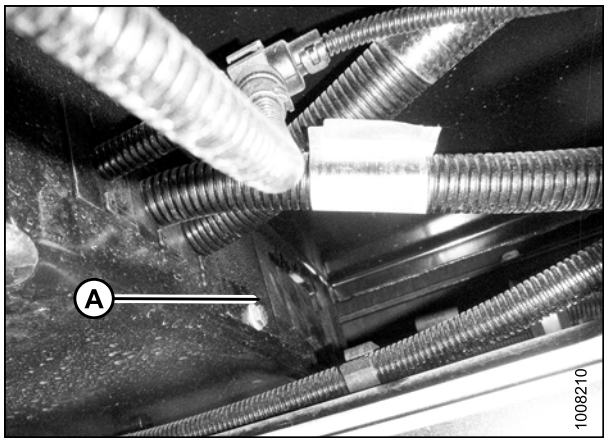


Figure 6.100: Exit Hole and MacDon Harness

12. Route wiring harness (A) along underside of cab floor with existing harnesses (500 Series Lexion shown in photo). Do NOT cable tie harness until routing is complete.

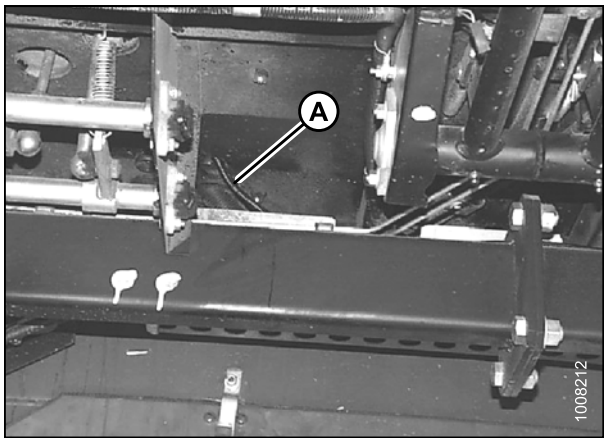


Figure 6.101: Wiring Harness along Underside of Cab Floor

13. Route wiring harness (A above) from bottom left corner of cab to conduit (C) between floor and frame as shown at (D) (500 Series Lexion shown in photo). Continue routing harness along conduit (C) to end at multicoupler.

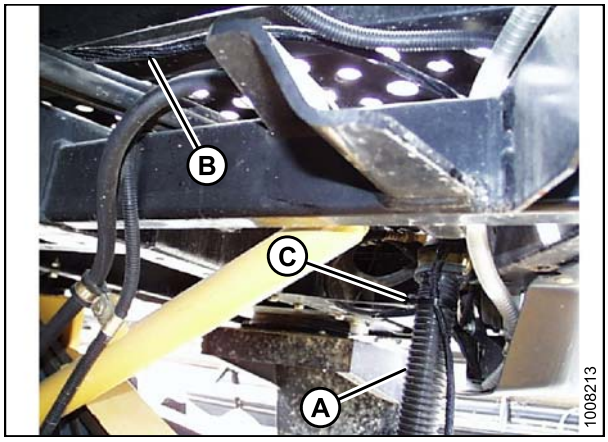


Figure 6.102: Harness through Conduit

A - Conduit **B - Routing Location**
C - Cable Tie

14. Starting at multi-coupler end, use cable ties at (A) to secure wiring harness (A above) to conduit (B) (500 Series Lexion shown in photo).

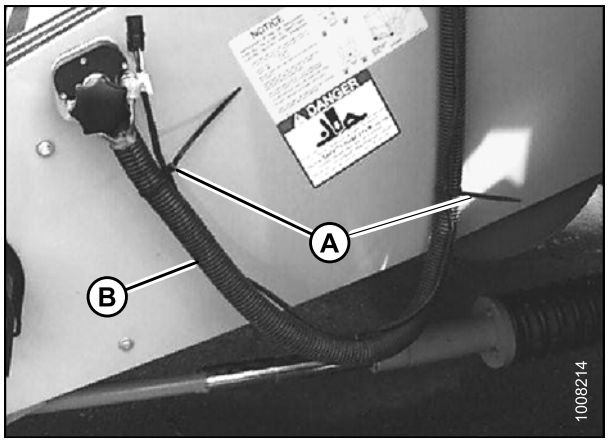


Figure 6.103: Cable Ties,Harness, and Conduit

15. Push excess harness back into terminal box once harness is secured with cable ties, and use cable ties to attach MacDon harness to existing harness (A) running to the console. This will prevent the harness from getting tangled when seat or console are moved.

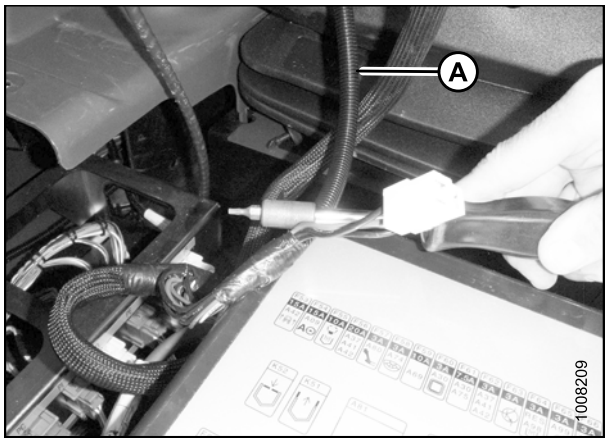


Figure 6.104: Existing Harness and MacDon Harness

Attaching Header to Lexion Combine

To attach header to the combine, follow these steps:

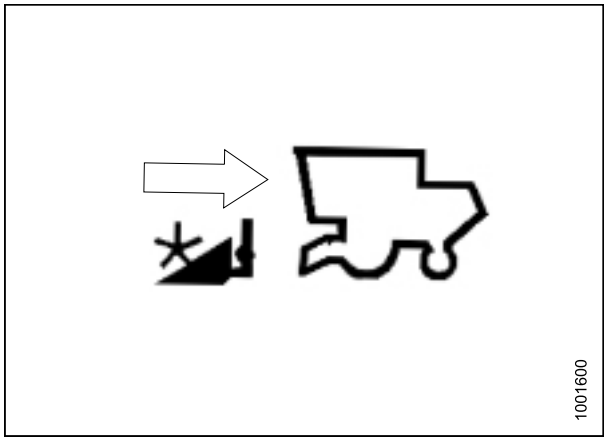


Figure 6.105: Attaching Header

1. Move handle (A) on the CA25 adapter into raised position, and ensure pins (B) at bottom corners of adapter are retracted.
2. Start engine, and slowly drive combine up to header until feeder house is directly under the adapter top cross member.

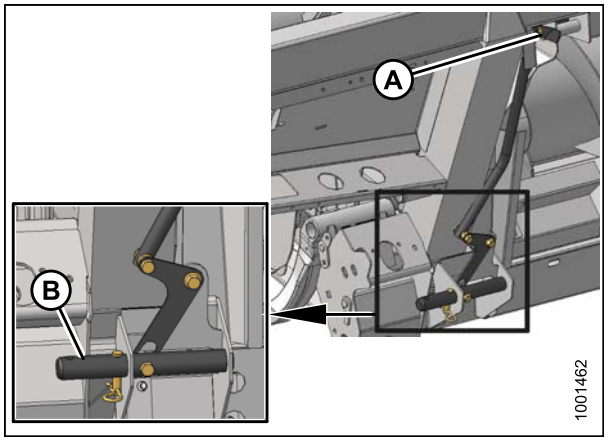


Figure 6.106: Pins Retracted

3. Raise feeder house to lift header, ensuring feeder house posts (A) are properly engaged in adapter frame (B).
4. Position header slightly off the ground.

⚠ CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

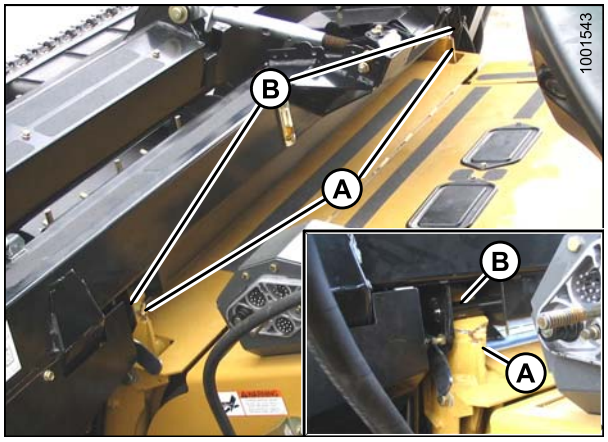


Figure 6.107: Header on Combine

5. Remove locking pin (A) from adapter pin (B).

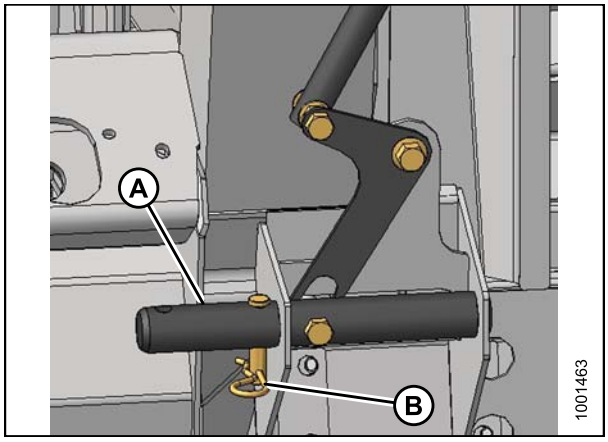


Figure 6.108: Locking Pins

6. Lower handle (A) to engage adapter pins (B) into feeder house. Reinsert locking pin (C), and secure with hairpin.
7. Remove blocks from under cutterbar.
8. Start engine and lower header. Shut down the combine.

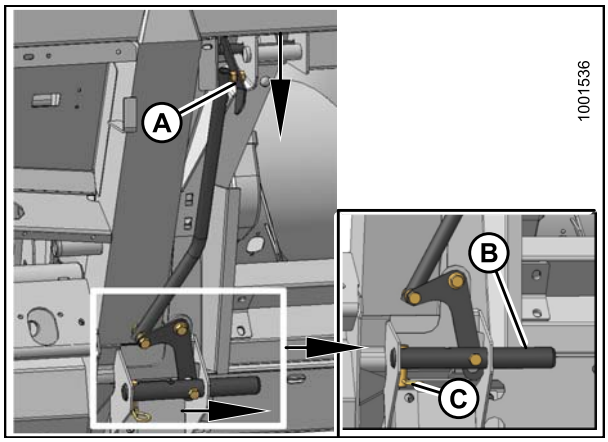


Figure 6.109: Engaging Pins

9. Unscrew knob (A) on combine coupler (B) to release coupler from combine receptacle and clean coupler.

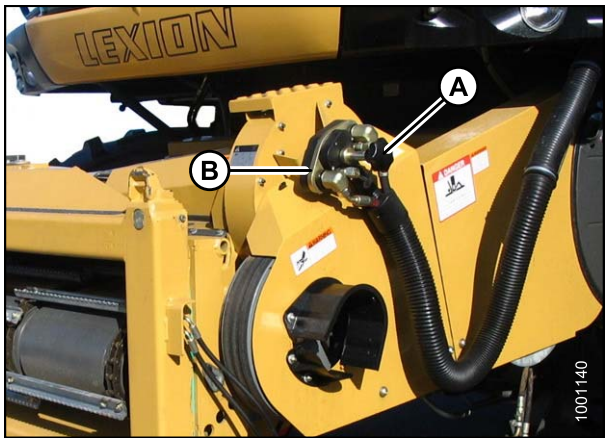


Figure 6.110: Combine Coupler

10. Locate cover (A) that is attached to the adapter frame, and remove it.

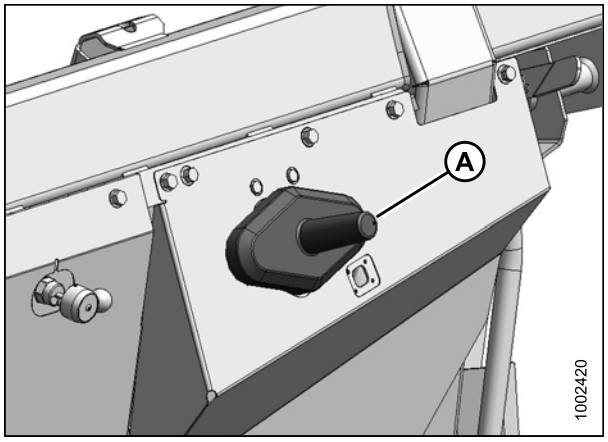


Figure 6.111: Receptacle Cover

11. Place cover (A) onto combine receptacle.

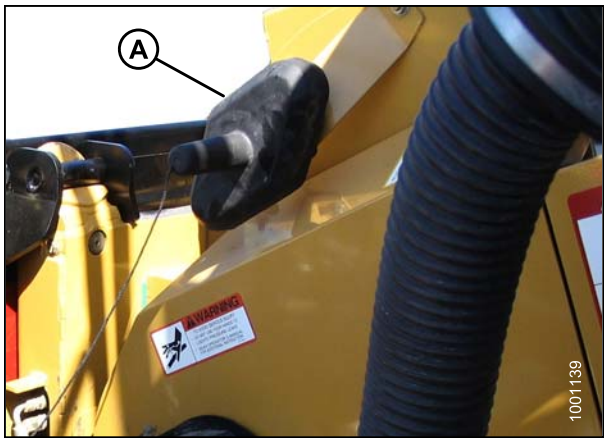


Figure 6.112: Receptacle Cover

12. Clean mating surface of coupler (A), and position onto adapter receptacle (B).
13. Turn knob (C) to secure coupler to receptacle.
14. Connect combine harness (D) to reel fore-aft/header tilt selector receptacle (E).

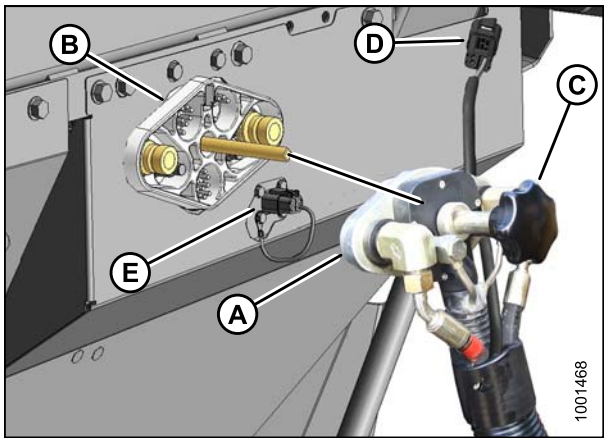


Figure 6.113: Coupler

15. Remove shipping wire from driveline and float lock lever.

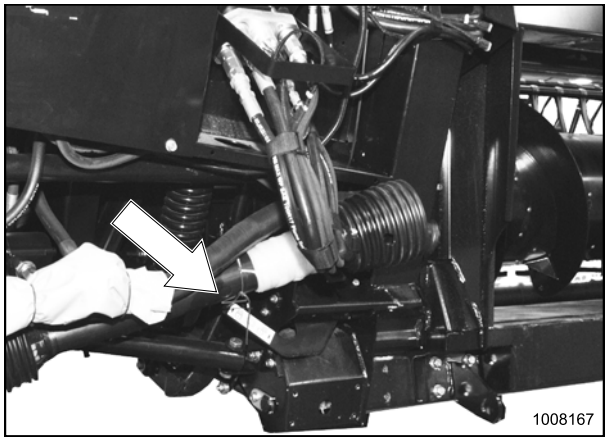


Figure 6.114: Shipping Wire on Driveline and Float Lock Lever

16. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.

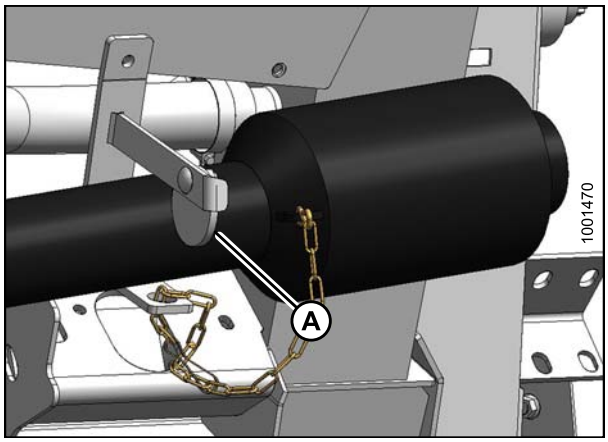


Figure 6.115: Driveline

17. Attach driveline (A) to combine output shaft.

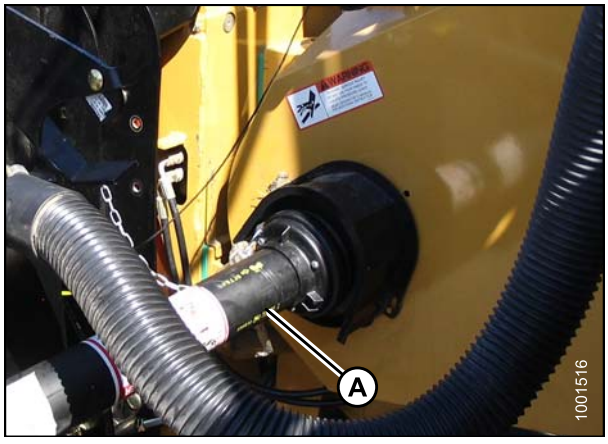


Figure 6.116: Driveline and Output Shaft

18. Proceed to *6.5 Attaching Cam Arms, page 82*.

6.4.5 New Holland Combines

Attaching Header to New Holland CR/CX Combine

To attach header to New Holland combines, follow these steps:

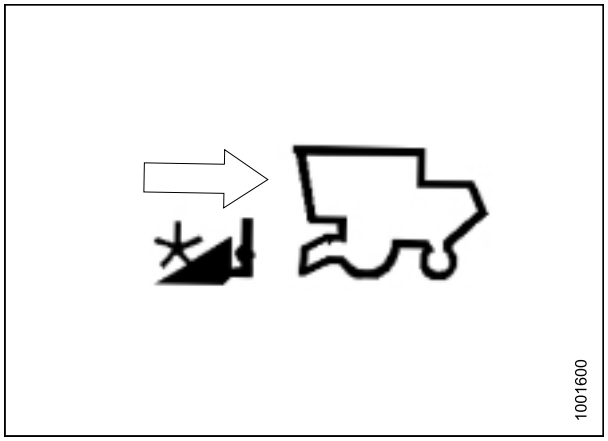


Figure 6.117: Attaching Header

1. Remove nut (A) and flip lever (B) horizontally on the combine adapter.

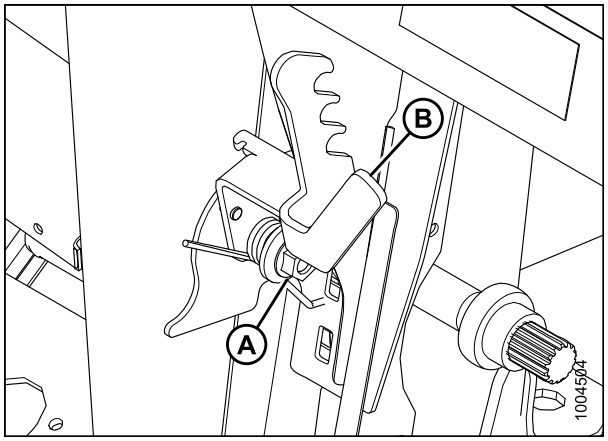


Figure 6.118: Combine Adapter Left-Hand Side

2. Place lever (B) onto stud. Place spring arm into hook on lever (B) to preload it. Tighten nut (A) onto the combine adapter.

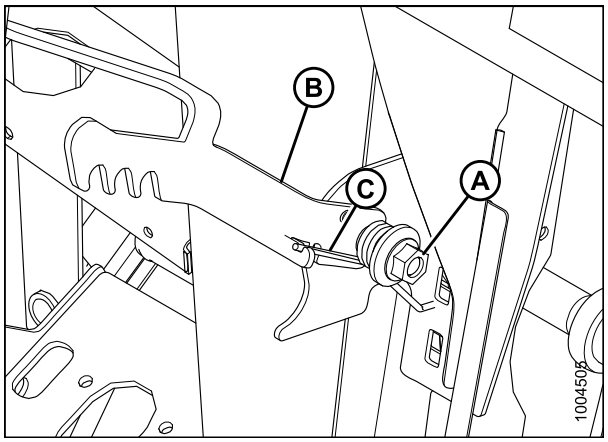


Figure 6.119: Combine Adapter Left-Hand Side

3. Ensure handle (A) is positioned so that hooks (B) can engage adapter.

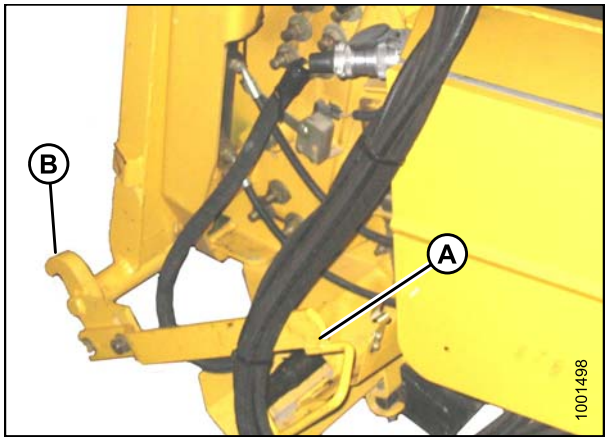


Figure 6.120: Feeder House Locks

4. Start engine and slowly drive combine up to header until feeder house saddle (A) is directly under the adapter top cross member (B).
5. Raise feeder house to lift header, ensuring feeder saddle is properly engaged in adapter frame.

CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

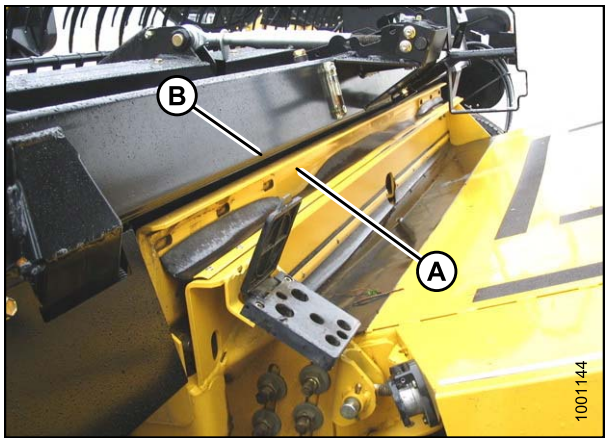


Figure 6.121: Header on Combine

6. Lift lever (A) on adapter at left side of feeder house, and push handle (B) on combine so that hooks (C) engage pins (D) on both sides of the feeder house.
7. Push down on lever (A) so that slot in lever engages handle to lock handle in place.
8. If hook (C) does not fully engage pin on adapter when (A) and (B) are engaged, loosen bolts (E), and adjust lock as required. Retighten bolts.

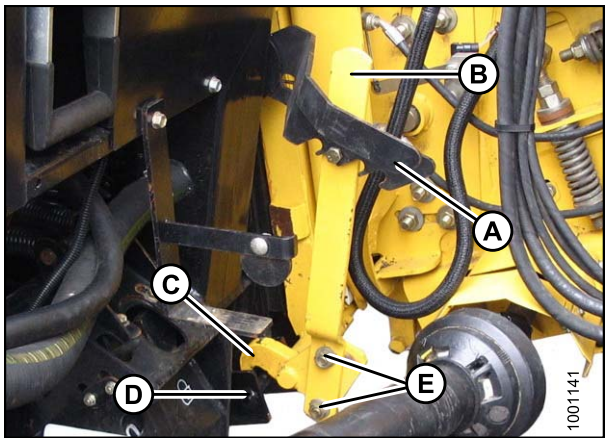


Figure 6.122: Feeder House Locks

9. Open cover (A).
10. Push in lock button (B), and pull handle (C) halfway up to open position.
11. Clean coupler face.

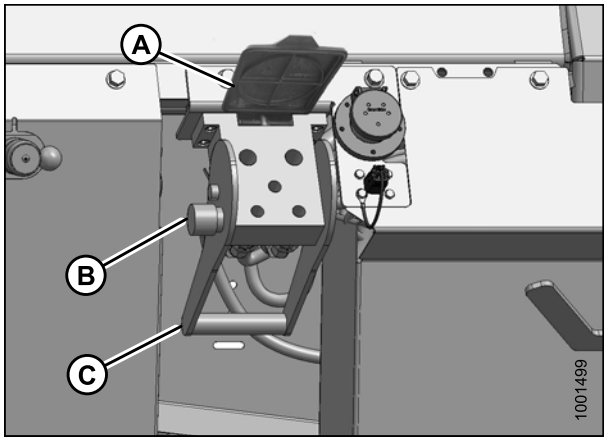


Figure 6.123: Adapter Receptacle

12. Remove hydraulic quick coupler (A) from storage plate on combine, and clean mating surface of coupler.

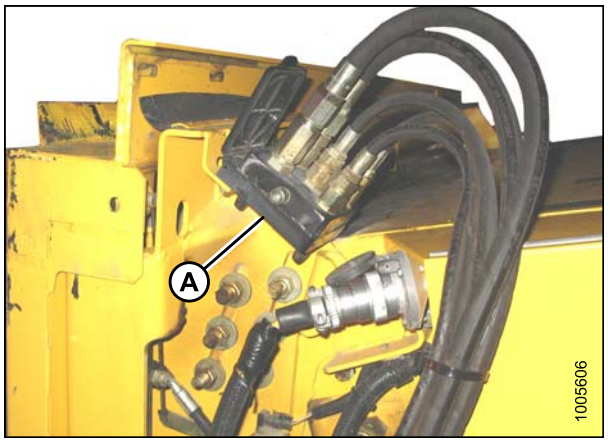


Figure 6.124: Combine Coupler

13. Position coupler (A) onto adapter receptacle, and push handle (B) to engage pins into receptacle.
14. Push handle (B) to closed position until lock button (C) snaps out.
15. Remove cover on adapter electrical receptacle.
16. Remove connector (D) from combine.
17. Align lugs on connector (D) with slots in adapter receptacle, and push connector onto receptacle. Turn collar on connector to lock it in place.

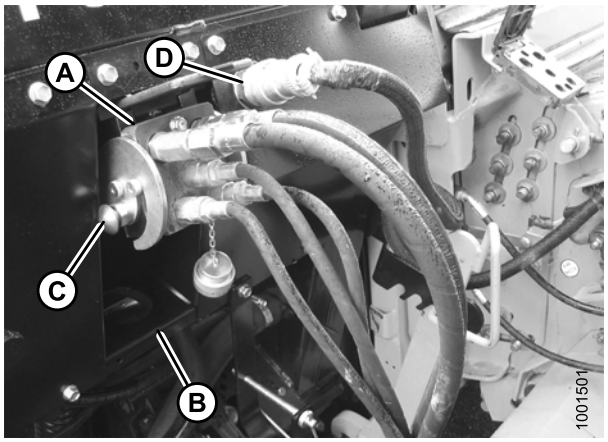


Figure 6.125: Connections

18. Remove shipping wire from driveline and float lock lever.

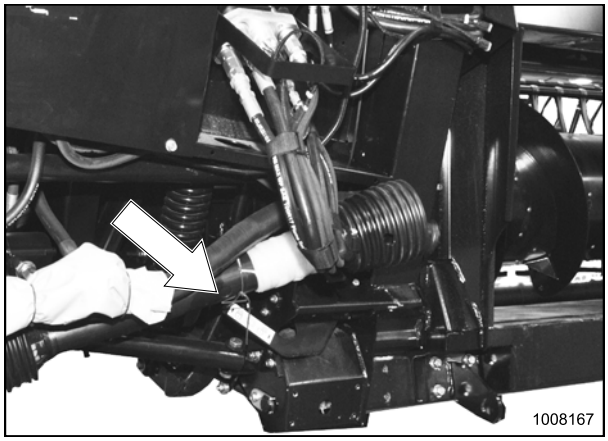


Figure 6.126: Shipping Wire on Driveline and Float Lock Lever

19. Rotate disc (A) on adapter driveline storage hook, and remove driveline from hook.

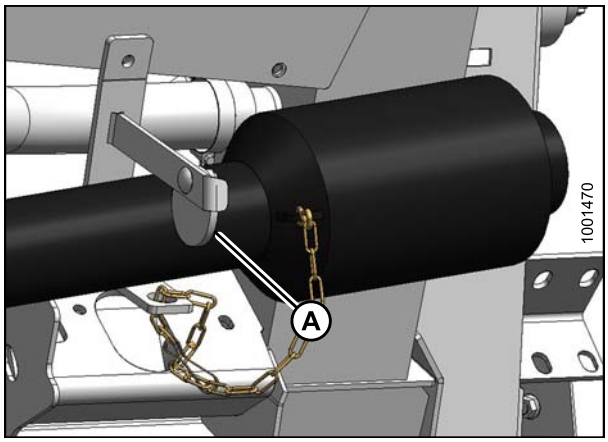


Figure 6.127: Driveline

20. Pull back collar on end of driveline, and push onto combine output shaft (A) until collar locks.

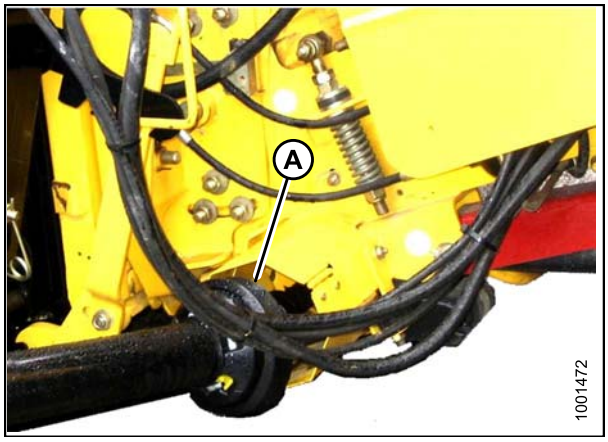


Figure 6.128: Driveline and Output Shaft

21. Proceed to *6.5 Attaching Cam Arms, page 82*.

6.5 Attaching Cam Arms

To attach the reel cam arms, follow these steps:

1. Manually rotate reel until the tine bars with the disconnected cam links are accessible.
2. Remove shipping wire (if not already removed).

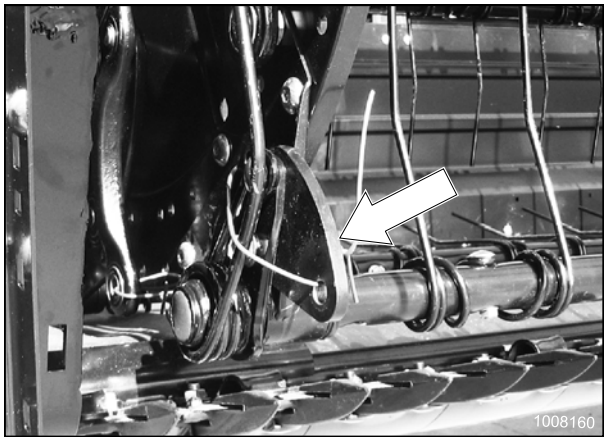


Figure 6.129: Disconnected Cam Links and Shipping Wire

3. Remove bag of hardware (A) from tine bar. It contains hardware for cam links and endshields.

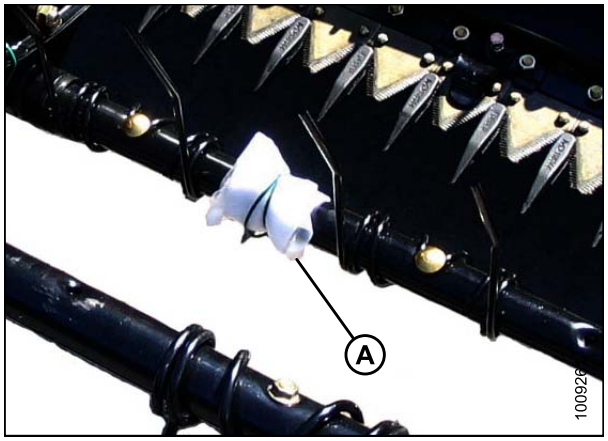


Figure 6.130: Hardware Bag Right-Hand Reel

4. Rotate tine bar crank (A), and position link (B) until attachment holes in bar crank and link are approximately aligned.
5. Install bolt (C) in link, and position shim (D) on bolt so that shim is between link and tine bar crank.

NOTE:

Bolts are pre-coated with Loctite®, so no further locking method is required.

6. Realign link and tine bar crank, and thread in the bolt.
7. Repeat for remaining tine bars, and torque bolts to 120 ft·lbf (165 N·m).

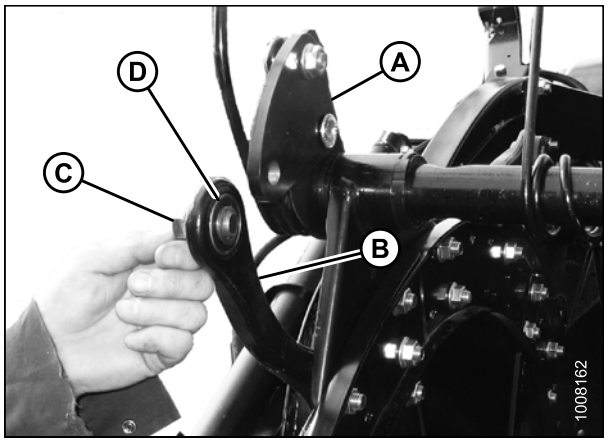


Figure 6.131: Bar Crank Attachment Holes and Link Alignment

8. Position pitch at ‘4’ to access bolt after rotating the reel. Reposition reel to ‘2’ when done.

NOTE:

This procedure is done only on the right-hand reel.

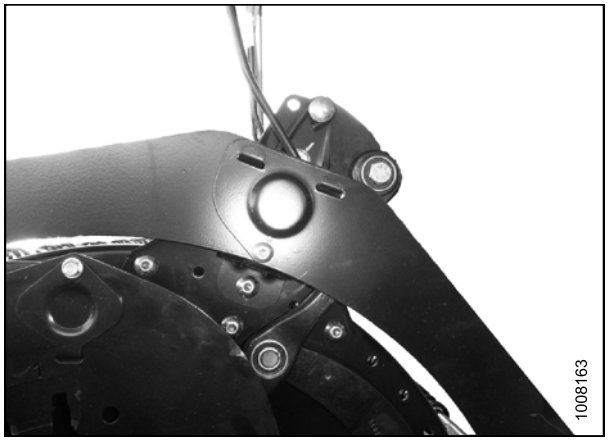


Figure 6.132: Right-Hand Reel with Cam Arms Attached

6.6 Repositioning Gearbox

To reposition the gearbox, follow these steps:

1. Remove shipping wire and wrapping on brace (A). Swing brace clear of gearbox.

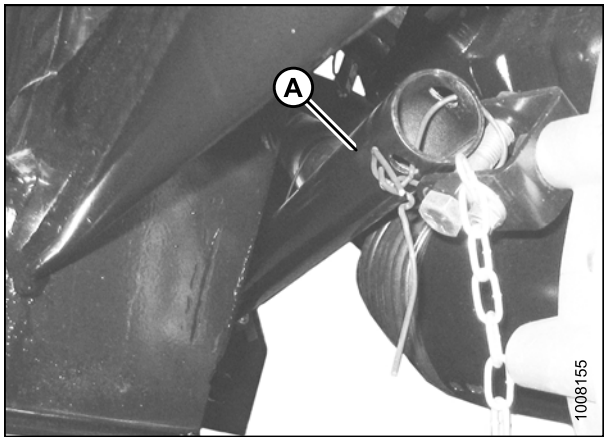


Figure 6.133: Shipping Wire and Brace

2. Loosen nut (A), and move bolt out of shipping position slot.

Figure 6.134: Shipping Position

3. Rotate gearbox, and insert bolt into working position slot (A). Tighten nut.

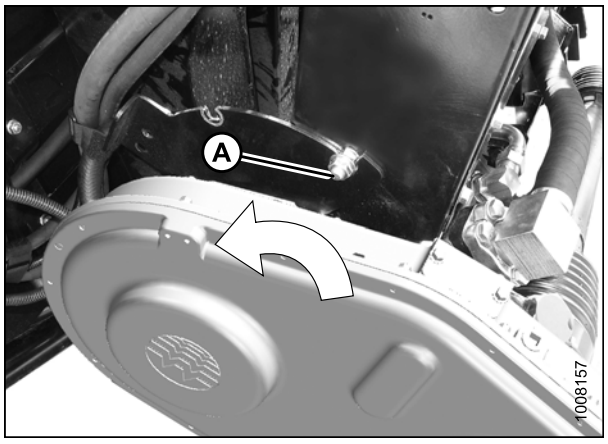


Figure 6.135: Working Position

4. Remove bolt and nut from bracket on gearbox.
5. Position brace (A) inside bracket, and reinstall bolt (B) and nut.

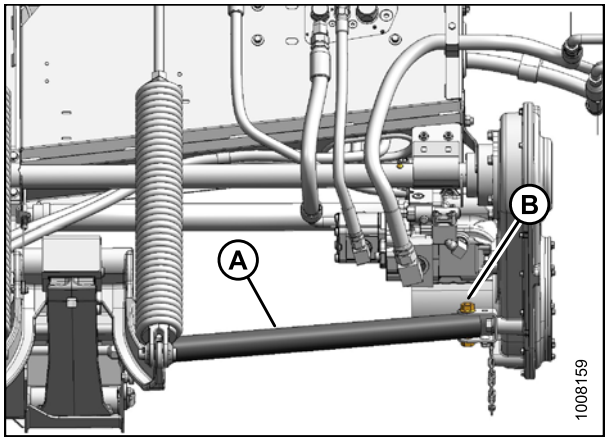


Figure 6.136: Brace Position

6.7 Removing Shipping Supports

The removable supports are painted yellow. Refer to illustrations, and remove the remaining supports as follows.

NOTE:

Unless otherwise specified, discard supports as well as all shipping material and hardware.

1. Remove two bolts (A) and remove strap (B) from both sides of center frame.

NOTE:

If strap is difficult to remove, lift on one end of header to release the load on the strap so that bolts can be removed.

2.

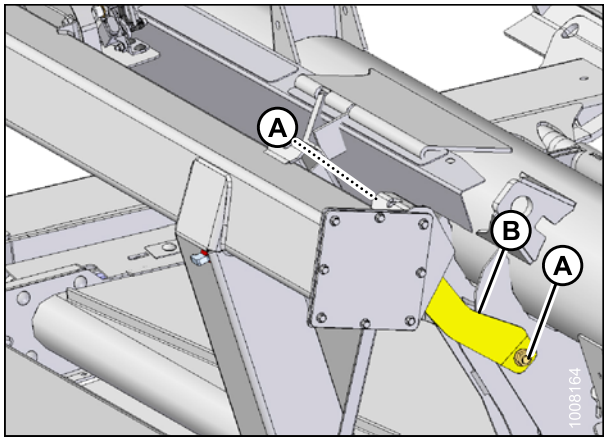


Figure 6.137: Strap on Center Frame

3. Remove lynch pin (A), nut and bolt (B), and remove shipping brace (C).
4. Reinstall lynch pin (A).

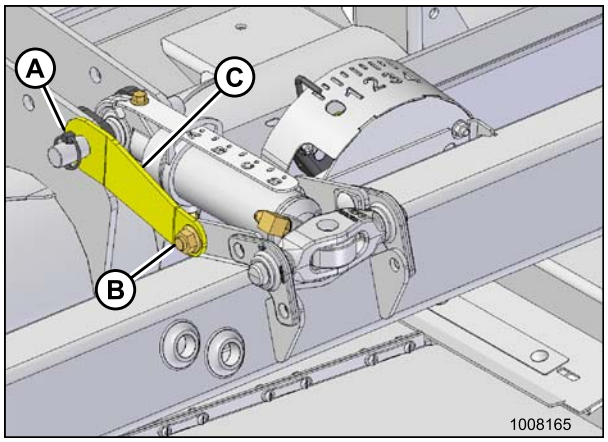


Figure 6.138: Lynch Pin, Hardware, and Shipping Brace

6.8 Positioning Transport Lights

Transport lights are located on each of the outboard reel arms.

1. Position lights perpendicular to header.

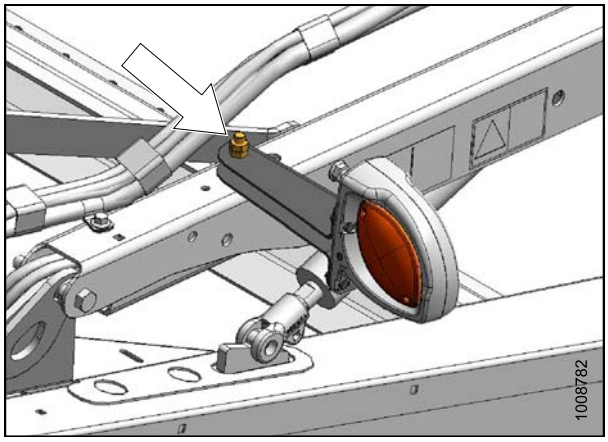


Figure 6.139: Transport Light Perpendicular to Header

6.9 Installing Crop Dividers

Dividers are stored on inboard side of endsheets.

1. Support the divider, remove shipping wire (A) at front end, and remove bolt (B).
2. Remove bolt and washer (C).

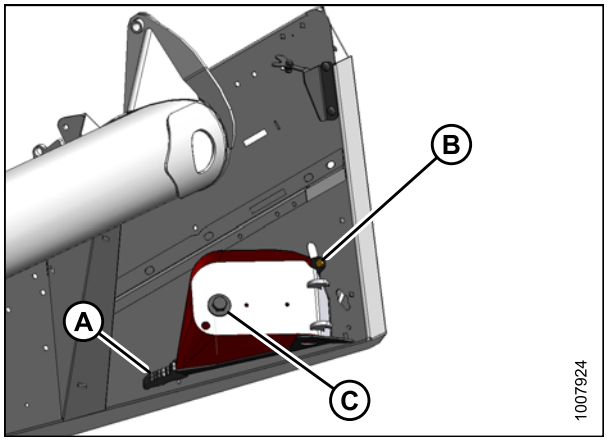


Figure 6.140: Crop Divider on Endsheet

3. Position crop divider as shown and insert lugs (A) into slots (B) in endsheet.

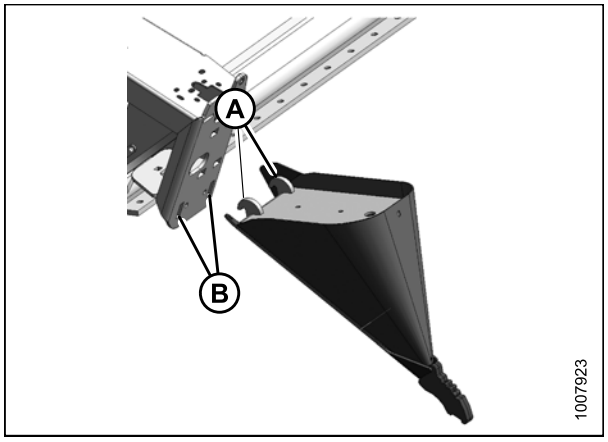


Figure 6.141: Crop Divider Lugs, and Endsheet Slots

4. Lift forward end of divider up to endsheet, and install washer (A) and bolt (B).

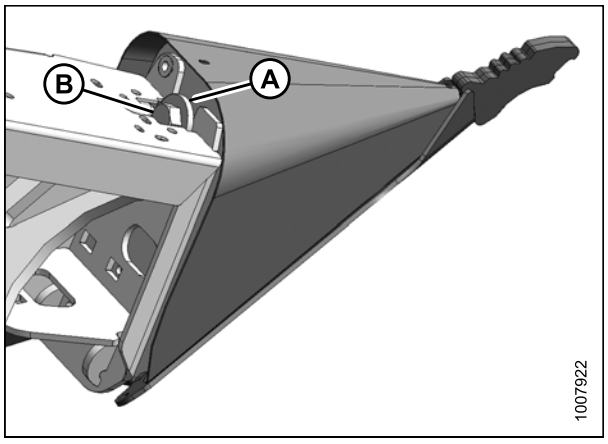


Figure 6.142: Installation Hardware

5. Check that divider does **NOT** move laterally. Adjust bolts (A) as required to tighten divider and remove lateral play when pulling at divider tip.

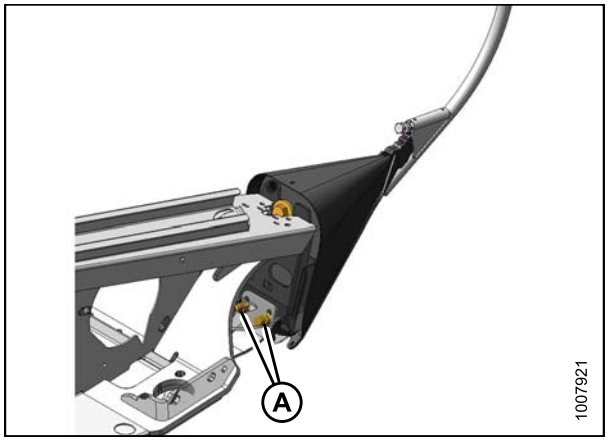


Figure 6.143: Adjustment Hardware

7 Performing Predelivery Checks

Perform all procedures in this chapter in the order in which they are listed.

WARNING

Stop combine engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.

IMPORTANT:

To avoid machine damage, check that no shipping dunnage has fallen into the machine.

IMPORTANT:

The machine has been set at the factory and should require no further adjustments; however, perform the following checks to ensure your machine will provide maximum performance. Adjustments should be made only if absolutely necessary, and in accordance with the instructions in this manual.

1. Perform the final checks as listed on the **Predelivery Checklist** (yellow sheet attached to this instruction – *Predelivery Checklist, page 219*) to ensure the machine is field-ready. Refer to the following pages for detailed instructions as indicated on the Checklist.
2. The completed Checklist should be retained either by the Operator or the Dealer.

7.1 Checking Tire Pressure: Transport and Stabilizer Wheels

Check tire inflation pressure. If necessary, inflate according to the following table:

Table 7.1 Tire Inflation Pressure

Size	Load Range	Pressure
ST205/75 R15	D	65 psi (448 kPa)
	E	80 psi (552 kPa)

IMPORTANT:

Do NOT exceed maximum pressure specified on tire sidewall.

7.2 Checking Wheel Bolt Torque: Transport and Stabilizer Wheels

1. Check wheel bolt torque is 80–90 ft·lbf (110–120 N·m). Refer to bolt tightening sequence illustration at right.

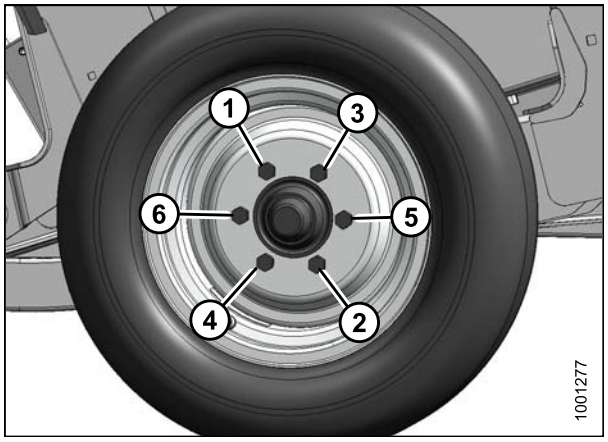


Figure 7.1: Wheel Bolts

7.3 Checking Knife Drive Box

For access to knife drive box(es), endshield(s) must be fully opened.

1. Remove lynch pin (A), and tool (B) from pin (C) at top rear of endshield.

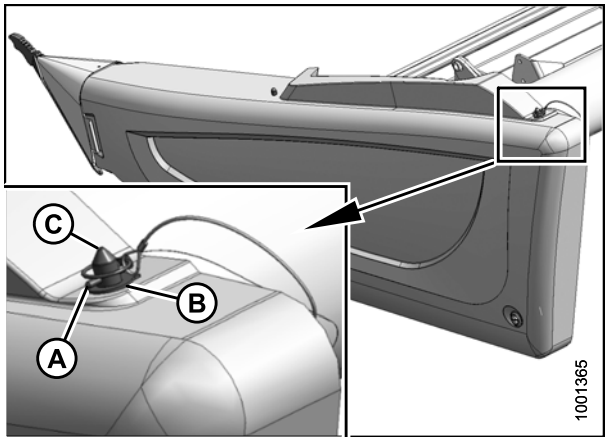


Figure 7.2: Left-Hand Endshield

2. Use tool (B) to unlock latch (A) at lower rear corner of endshield.
3. Lift endshield at aft end to clear pin.
4. Swing endshield out and away from header while maintaining forward pressure to prevent shield from slipping out of tab (C) at front of endsheet.
5. Carefully disengage front of endshield from tab (C), and swing front of endshield away from header.

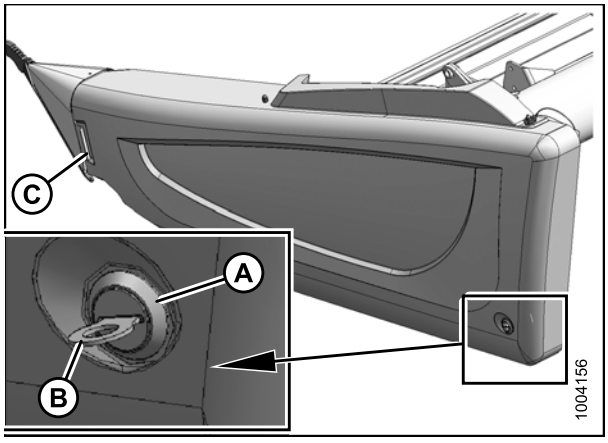


Figure 7.3: Left-Hand Endshield Unlock Tool

6. Position of plug (A) and breather (B) at knife drive box MUST be as shown.
7. Check oil level. It should be between the lower hole (C) on the dipstick and the bottom end of the dipstick.

NOTE:

Check oil level with top of knife drive box horizontal.

8. Leave endshield(s) open.

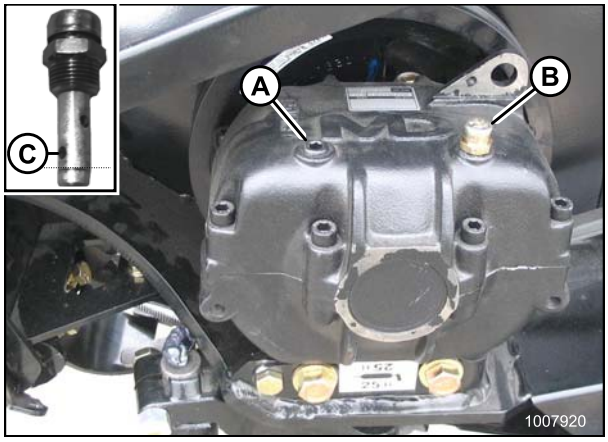


Figure 7.4: Knife Drive Box

7.4 Checking Oil Level in Header Drive Gearbox

CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Set cutterbar to working position. Shutdown combine and remove key from ignition.
2. Remove plug (A). Oil level should be to bottom of hole.
3. Reinstall plug (A).

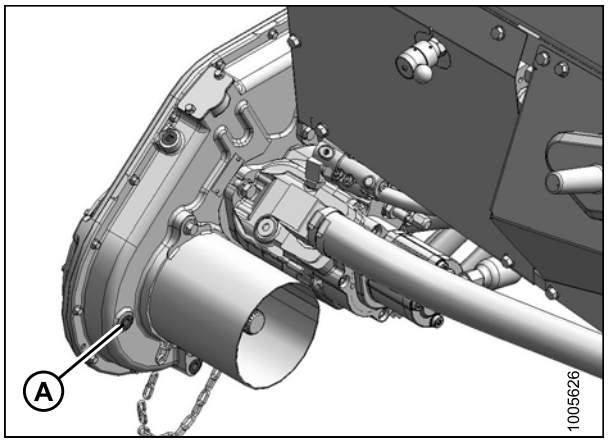


Figure 7.5: Gearbox

7.5 Checking Oil Level

Check oil level at lower (A) and upper (B) sights with cutterbar just touching ground. Check level when oil is cold, and with center-link retracted.

- **Nominal - Normal Terrain (D):** Maintain level so lower sight (A) is full, and upper sight (B) is empty.

NOTE:

When ambient temperatures are above 95°F (35°C), it may be necessary to lower oil level slightly to prevent overflow at breather under operating temperatures.

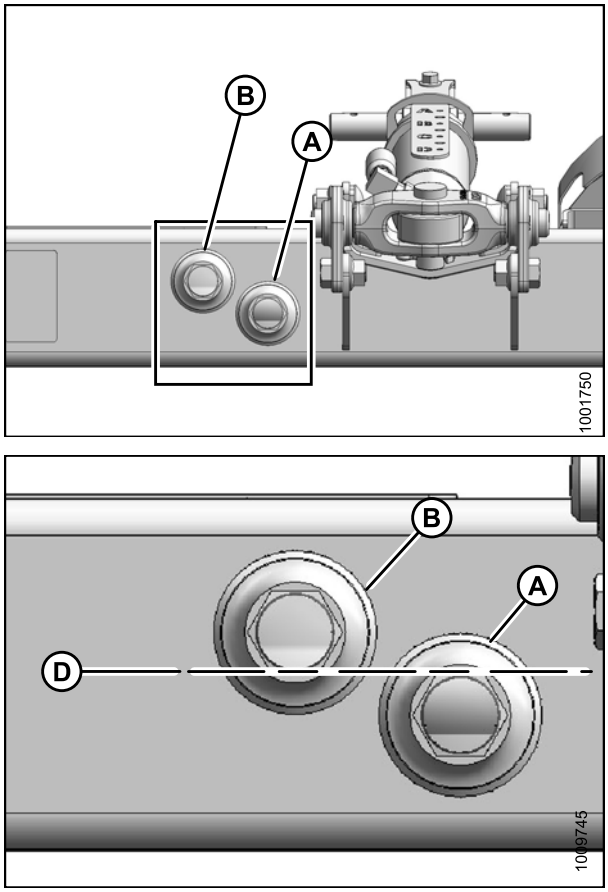


Figure 7.6: Oil Level Sights

7.6 Checking and Adjusting Knife Drive Belt Tension

NOTE:

The knife drive is identical on both sides of the header.

1. Open endshield(s).
2. A force of 20 ft·lbf (80 N·m) should deflect belt (A) 3/4 in. (18 mm) at mid-span.
3. If necessary, adjust tension as follows:
   a. Loosen two bolts (B) on knife drive mounting bracket and jam nut (C).
   b. Turn adjuster bolt (D) to move drive motor until tension is achieved.
   c. Tighten jam nut (C) and bolts (B) on drive mounting bracket.
4. Close endshield(s).

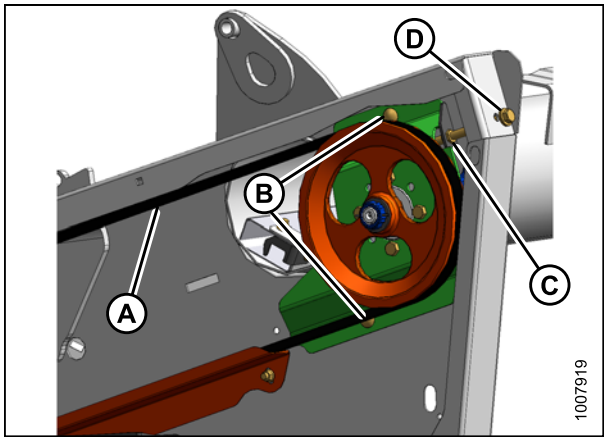


Figure 7.7: Left-Hand Shown - Right-Hand Opposite for Double Knife

7.7 Centering Reel

To check and center the reel, follow these steps:

1. Raise header, shut down combine, and engage header lift cylinder stops.
2. Place two 6 in. (150 mm) blocks at ends of cutterbar (B).
3. Disengage float locks and header lift cylinder locks.
4. Start combine, and lower header fully, allowing it to flex into 'full smile' mode.
5. Shut down engine.

WARNING

Stop combine engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.

6. Measure clearance between reels and both endsheets. The clearances should be the same if the reels are centered.
7. Measure clearance between reels and both endsheets. The clearances should be the same if the reels are centered.
8. If required, center the reels as follows:
   a. Loosen bolt (A) on each brace (B).
   b. Move forward end of center support arm (C) laterally as required to center both reels.
   c. Tighten bolts (A), and torque to 265 ft·lbf (359 N·m).

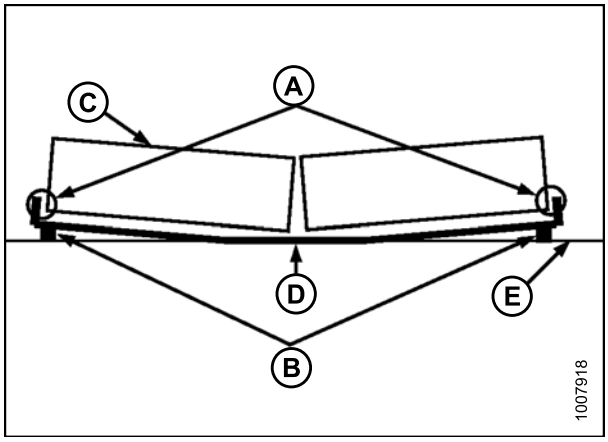


Figure 7.8: Header on Blocks

A - Take Measurements in these Two Places
B - 6 in. Blocks
C - Reel
D - Cutterbar
E - Level Ground

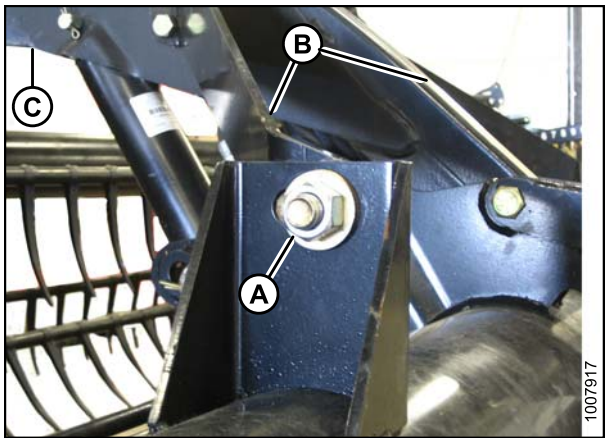


Figure 7.9: Clearance between Reels and Endsheets

7.8 Checking and Adjusting Header Float

To check and adjust the header float, follow these steps.

1. Park combine on level surface.
2. Fully lower the reel, and adjust the fore-aft position to ‘5’ on decal on the right side reel arm.

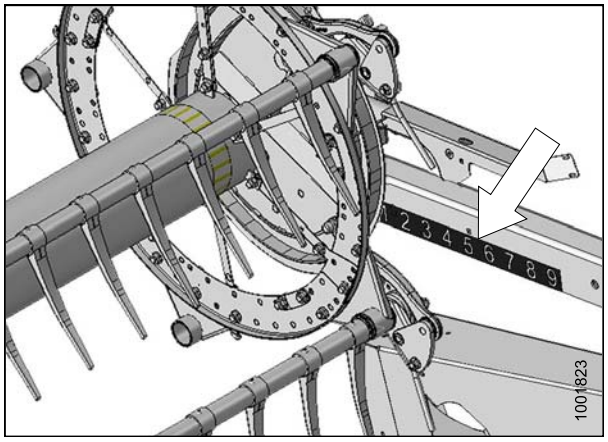


Figure 7.10: Fore-Aft Position

3. Adjust center-link to mid-range (between ‘B’ and ‘C’ on the indicator).
4. Position cutterbar 8–12 in. (200–300 mm) off the ground.

CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

5. Stop engine, and remove key from ignition.

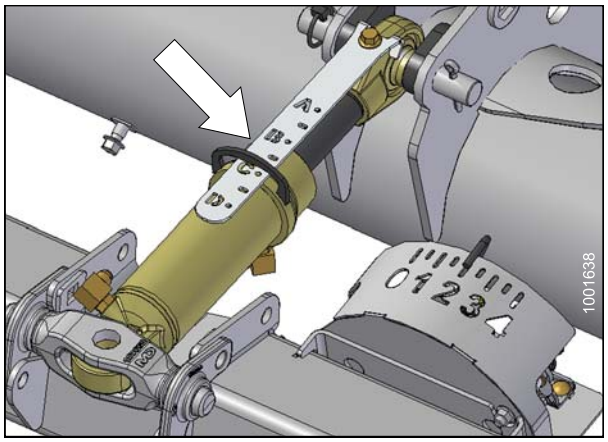


Figure 7.11: Center-Link between ‘B’ and ‘C’

IMPORTANT:

Do **NOT** use the adapter float springs to level the header.

6. Check that adapter is level. If the adapter is **NOT** level, perform the following checks prior to adjusting the levelling linkages:
   a. Check combine tire pressures.
   b. Check that the combine feeder house is level. Refer to combine operator’s manual for instructions.
   c. Check that top of adapter is level with combine axle.

7. Ensure both wing locks (A) are engaged. Spring handle is in LOCK (upper) position.

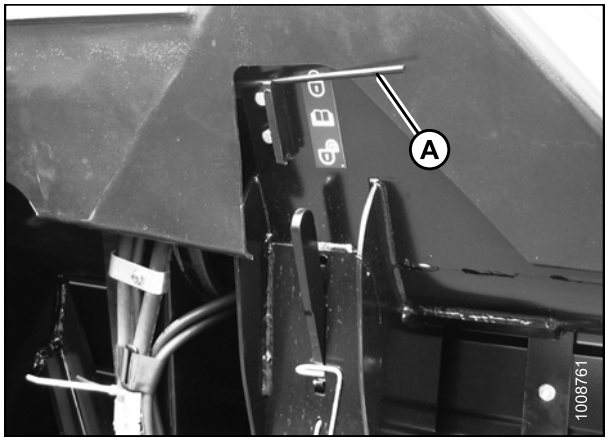


Figure 7.12: Wing Lock

8. Move both header float lock levers (A) down (UNLOCK).

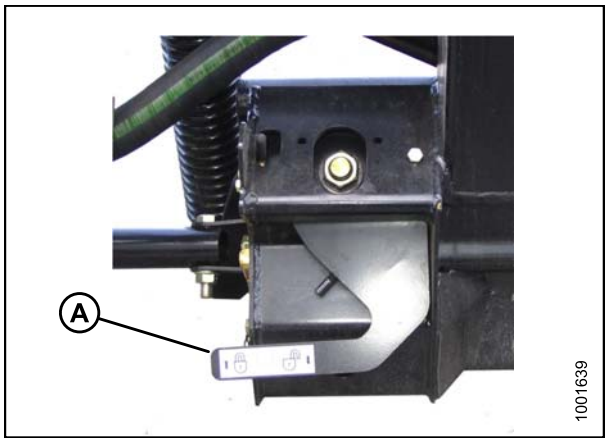


Figure 7.13: Header Float Lock

9. If header is equipped with stabilizer wheels or slow speed transport wheels, place them in storage position as follows:

   a. On the left wheel assembly, support wheel weight by lifting slightly with one hand. Pull up on handle (A) to release lock.

   b. Lift wheels to desired height and engage support channel into slot (B) in upper support.

   c. Push down on handle (A) to lock.

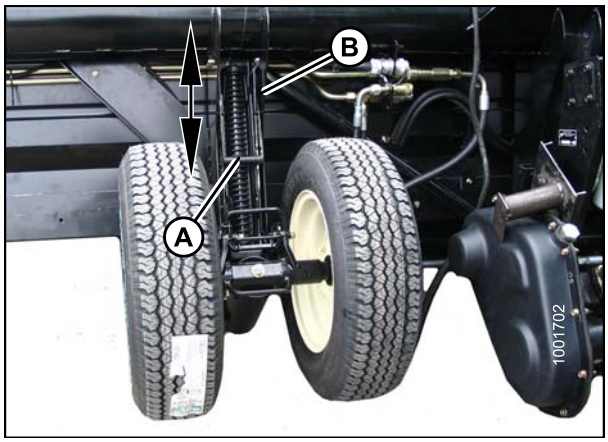


Figure 7.14: Left Wheels Shown – Right Wheels Similar

10. Remove special torque wrench (A) from storage position at right side of adapter frame. Pull slightly in direction shown to disengage wrench from hook.

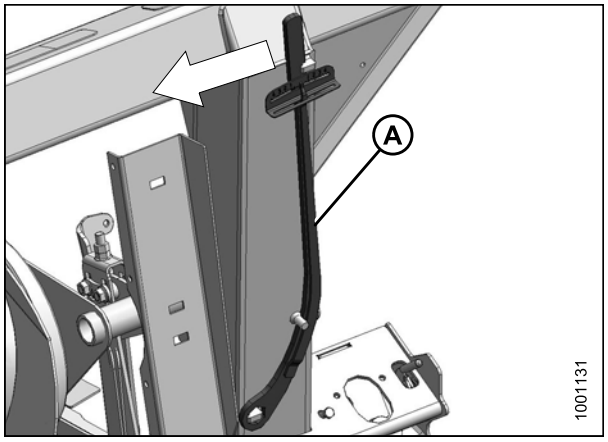


Figure 7.15: Torque Wrench

11. Place torque wrench (A) onto float lock at (B). Note position of wrench for checking right or left side.
12. Push down on wrench to rotate bell crank (C) forward.

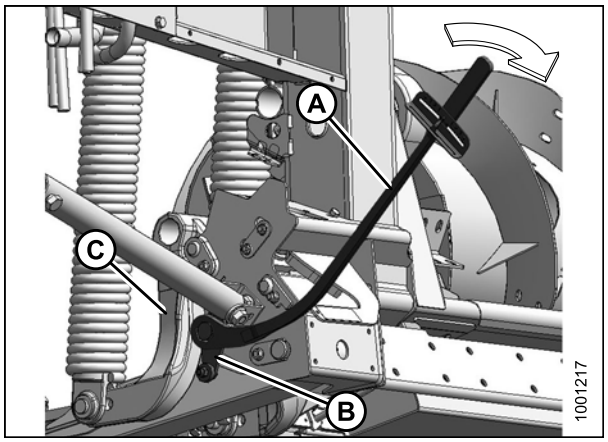


Figure 7.16: Left Side

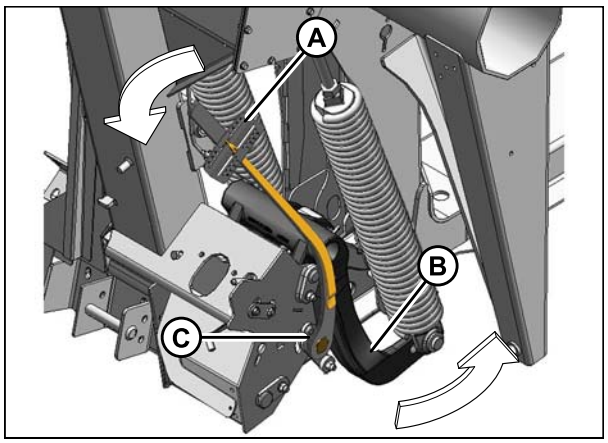


Figure 7.17: Right Side

13. Continue pushing down on the wrench until indicator (A) reaches a maximum reading, and begins to decrease. Note the maximum reading. Repeat for opposite side.
14. Use the table below as a guide for float settings. If reading on wrench is **high**, header is **heavy**. If reading on wrench is **low**, header is **light**.

Table 7.2 Float Settings

Header Size	Torque Settings	
	Cutting on the Ground	Cutting off the Ground
30 and 35 ft.	1-1/2 to 2	2 to 2-1/2
40 and 45 ft.	2 to 2–1/2	2-1/2 to 3

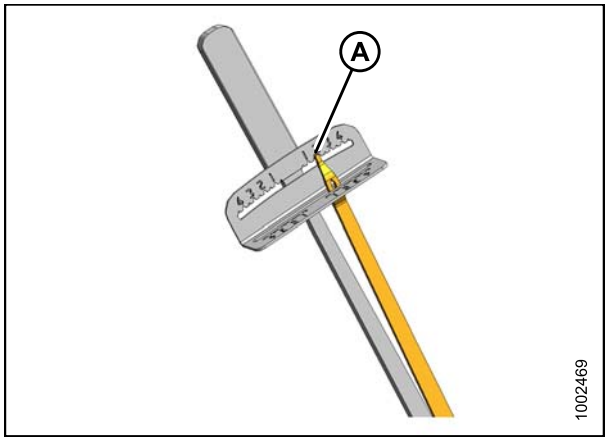


Figure 7.18: Indicator

15. To **increase** float (lighten header), turn bolts (A) and (B) **clockwise**.

NOTE:

Loosen jam nuts on adjuster bolts before adjusting, and retighten once complete.

16. To **decrease** float (increase header weight), turn bolts (A) and (B) **counterclockwise**.

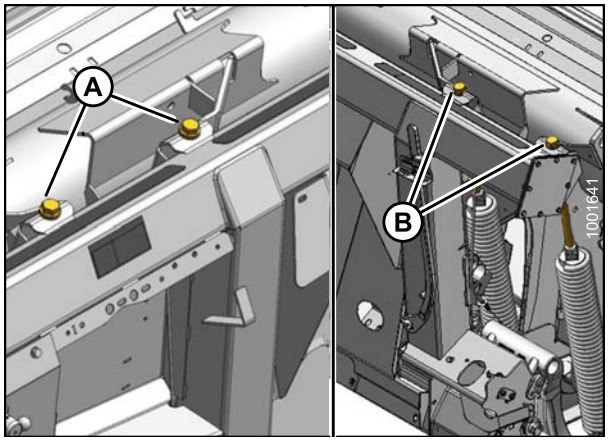


Figure 7.19: Float Adjustment

A - Left Side Adjustment **B - Right Side Adjustment**

17. Use the following guidelines when adjusting float:
    - Adjust the float on **30-, 35- and 40-foot single-knife** headers so that the wrench reading is equal at both sides.
    - Adjust the float on **40- and 45-foot double-knife** headers so that wrench readings are equal for both sides, and then loosen both right side spring bolts two turns.
    - Turn each bolt pair equal amounts. After adjustment has been made, repeat torque wrench reading procedure.
    - Header float should be set as light as possible to avoid frequent breakage of knife components, scooping soil, or soil build-up at cutterbar in wet conditions, without causing excessive bouncing.
    - Use a slower ground speed if necessary with a light float setting to avoid excessive bouncing and leaving a ragged cut.

NOTE:

If adequate header float cannot be achieved using all of the available adjustments, an optional heavy duty spring is available.

7.9 Checking and Adjusting Header Wing Balance

Header wing float is the ability of the header's wings to react to changing ground conditions. If set too LIGHT, the wings will bounce on the ground. If set too HEAVY, the wings will dig into the ground. The wings need to be balanced for the float system to work properly.

7.9.1 Checking Wing Balance

This procedure describes how to check the balance of each wing.

If a wing has a tendency to be in a smile (A) or frown (B) position, wing balance may require adjusting. Perform the following steps to verify if the wings are not balanced and the degree of imbalance:

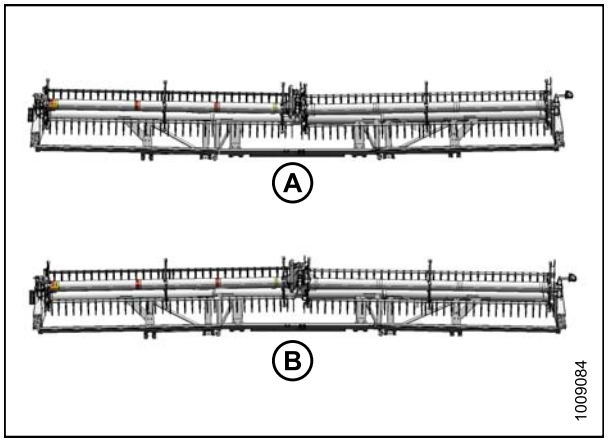


Figure 7.20: Wing Imbalance

1. Adjust the header center-link to to approximately halfway between '**B**' and '**C**' on indicator (A).
2. Park combine on level ground and raise header until cutterbar is 6–10 in. (152–254 mm) off the ground.
3. Stop engine and remove key.
4. If installed, move transport/stabilizer wheels so that they are supported by header. Refer to instructions provided with the transport/stabilizer system.

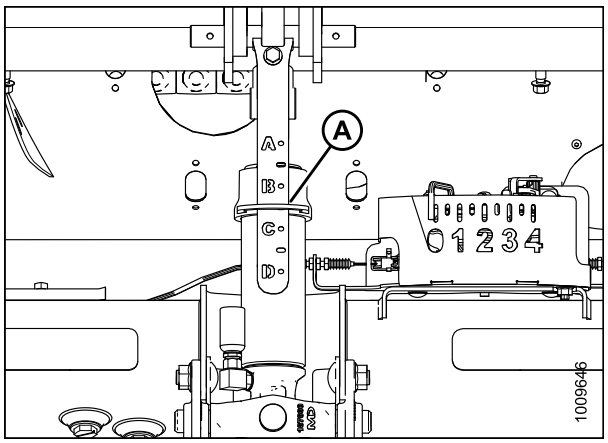


Figure 7.21: Center Link

5. Remove linkage cover (A) by removing bolt (B) and rotating cover upward until inboard end can be lifted off.

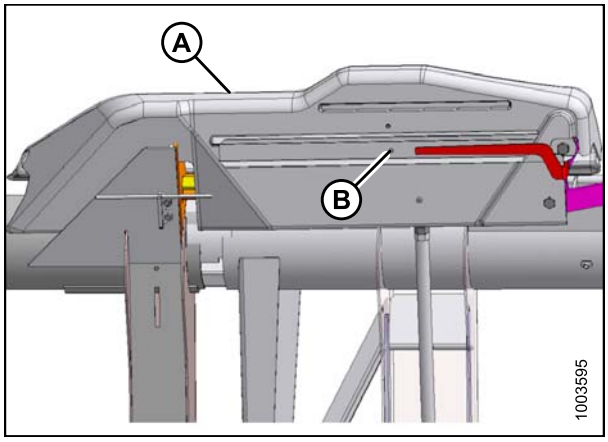


Figure 7.22: Linkage Cover

NOTE:

See the decal (A) inside each linkage cover.

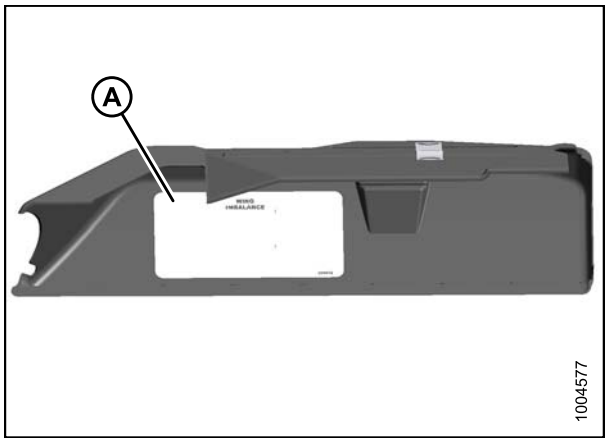


Figure 7.23: Linkage Cover

6. Unlock the wings by moving spring handles (A) to lower UNLOCK position.

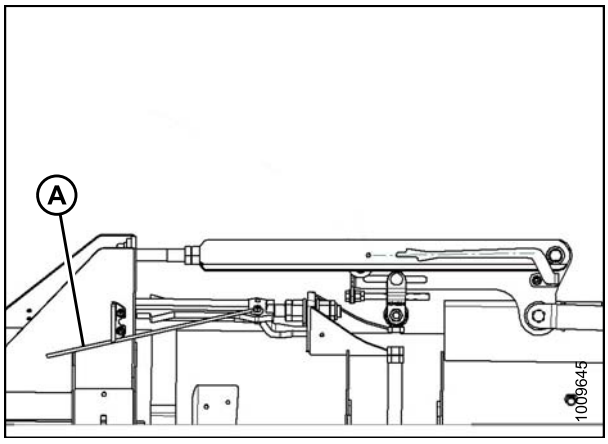


Figure 7.24: Wing Lock in Unlock Position

7. Retrieve wrench (A) from right-hand adapter leg.

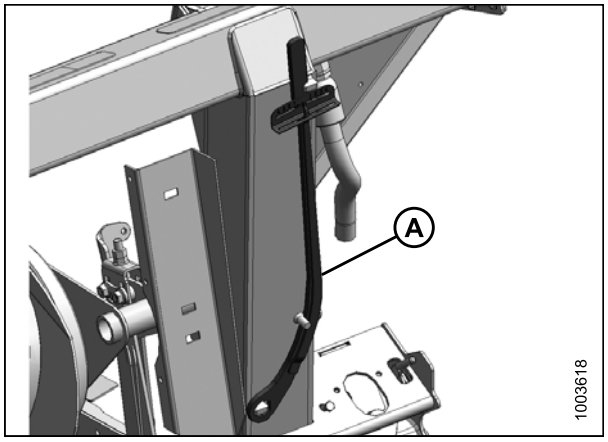


Figure 7.25: Torque Wrench

8. Place torque wrench (A) on bolt (B).

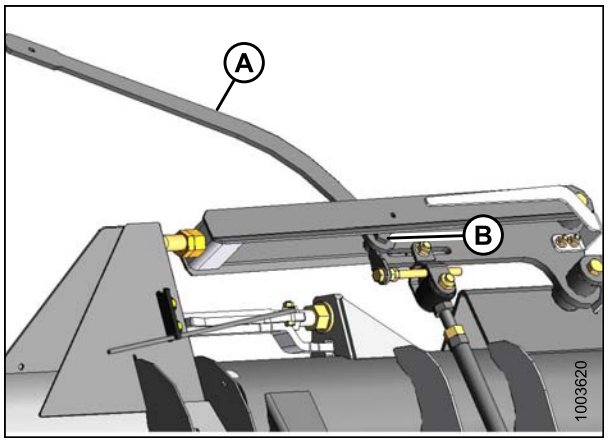


Figure 7.26: Balance Linkage

9. Check that pointer (D) is properly positioned as follows:
   a. Use wrench (A) to move bell crank (B) so that lower edge of bell crank is parallel to top-link (C).
   b. Check that pointer (D) is lined up with the top-link (C). Bend pointer if necessary.

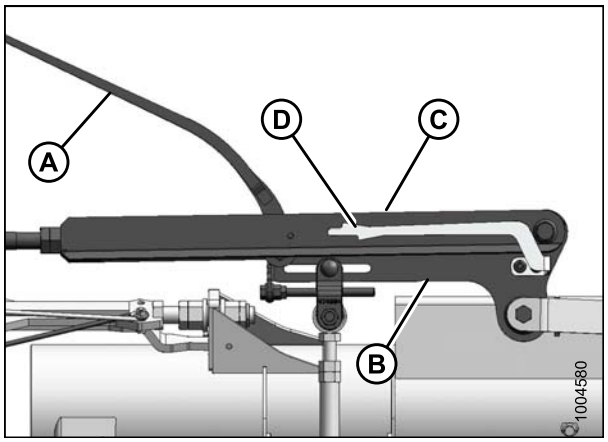


Figure 7.27: Balance Linkage

10. Move wing upward with torque wrench (A) until pointer lower alignment tab (C) lines up with upper edge of top-link (B). Observe indicator reading (A) on wrench and record it.

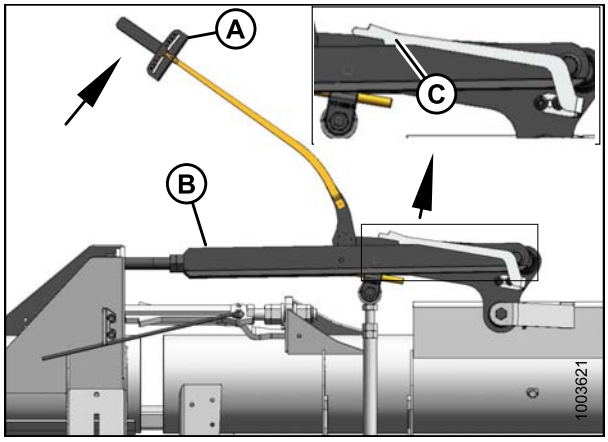


Figure 7.28: Balance Linkage

11. Move wing downward with torque wrench (A) until pointer upper alignment tab (C) lines up with the lower edge of the top-link (B). Observe indicator reading (A) on the wrench and record it.

- If the difference between the readings is 1 or less, the wing is balanced and no further adjustment is required. Follow the steps below to reinstall the linkage cover.
- If the difference between the readings is more than 1, the wing is not balanced. Refer to *7.9.2 Adjusting Wing Balance, page 107*.

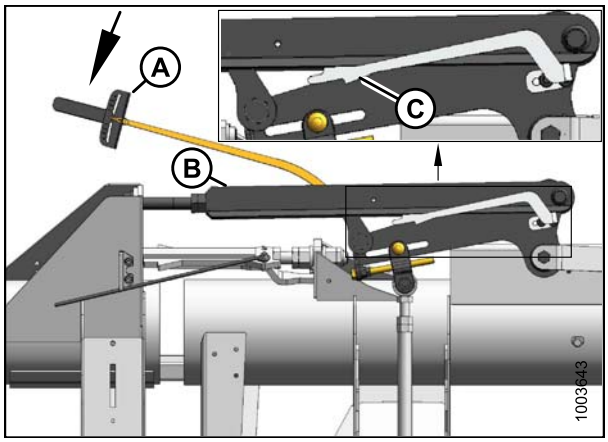


Figure 7.29: Balance Linkage

- If the indicator range is as shown at right, the wing is too light.

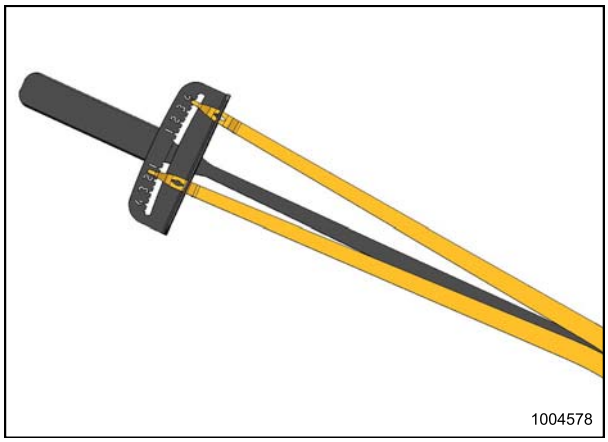


Figure 7.30: Wrench Indicator

- If the indicator range is as shown at right, the wing is too heavy.

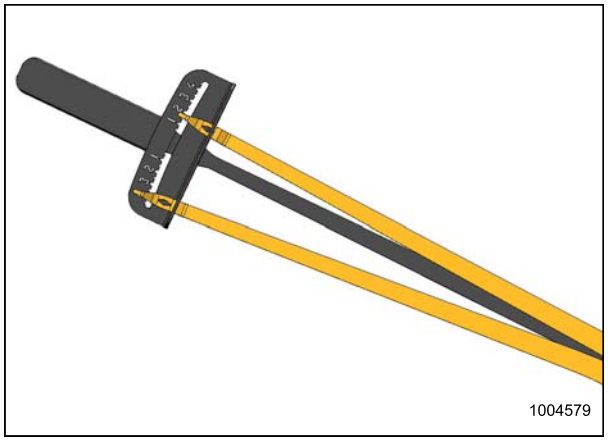


Figure 7.31: Wrench Indicator

12. Place wrench (A) back onto the right-hand adapter leg.

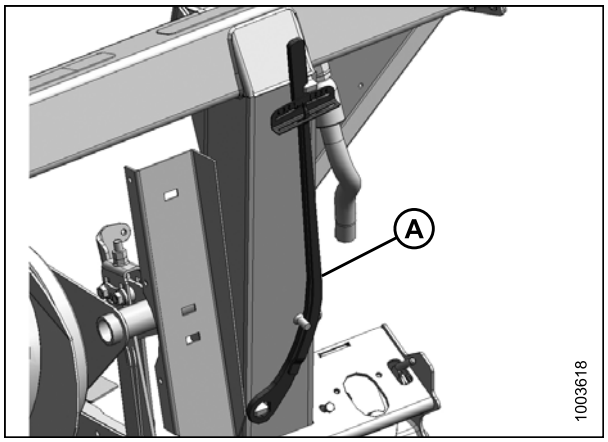


Figure 7.32: Torque Wrench

13. Lock the wings by moving spring handles (A) to upper LOCK position.

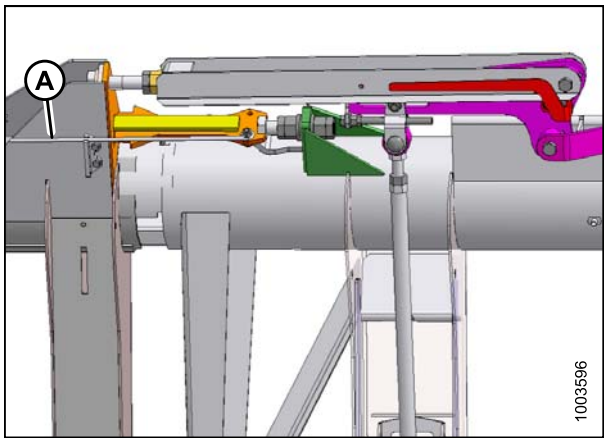


Figure 7.33: Wing Lock in Lock Position

14. Reinstall linkage cover (A), secure with bolt (B).

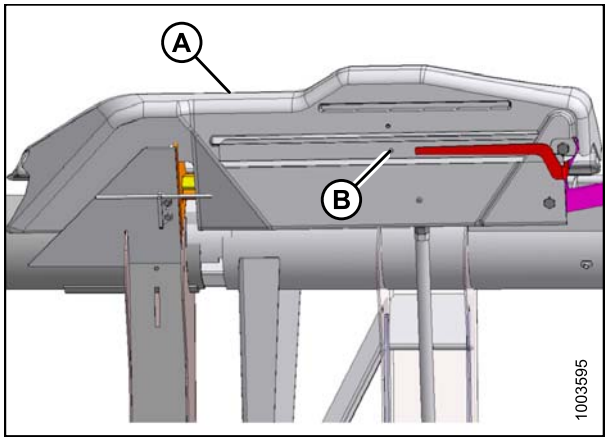


Figure 7.34: Linkage Cover

7.9.2 Adjusting Wing Balance

This procedure is used to adjust the wing balance after determining the imbalance in the previous section.

Before proceeding check the wing balance to verify how to adjust the wing. Refer to *7.9.1 Checking Wing Balance, page 102*.

NOTE:

Left-hand side is shown.

1. Extend the header center link to between B and C on indicator (A).
2. Park combine on level ground and raise header until cutterbar is 6–10 in. (152–254 mm) off the ground.
3. Stop engine and remove key.
4. If installed, move transport/stabilizer wheels so that they are supported by header. Refer to instructions provided with the transport/stabilizer system.
5. Remove linkage cover (A) by removing bolt (B).

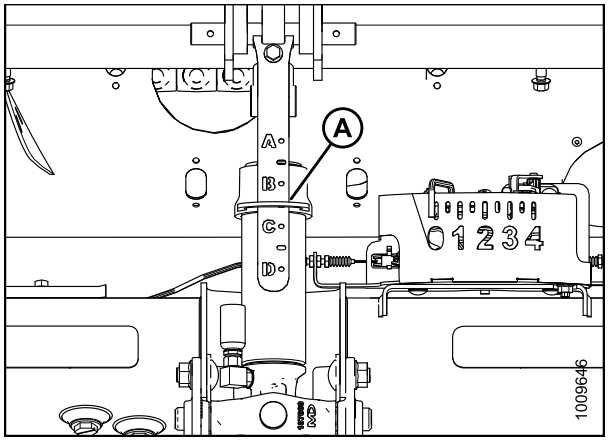


Figure 7.35: Center Link

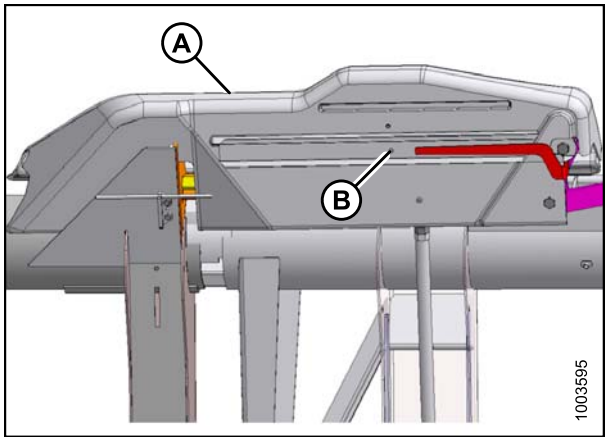


Figure 7.36: Linkage Cover

NOTE:

Refer to decal (A) inside each linkage cover.

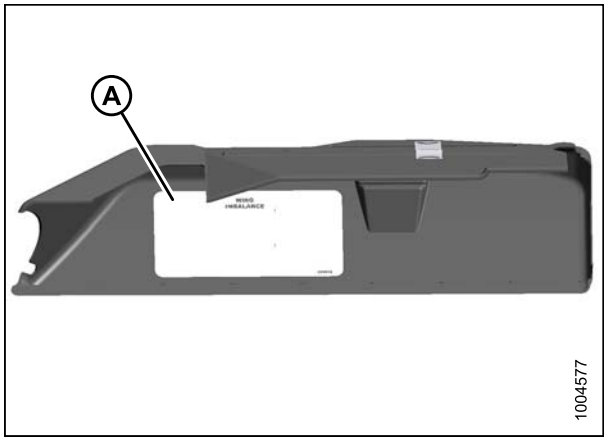


Figure 7.37: Linkage Cover

6. Unlock the wings by moving handle (A) to lower UNLOCK position.

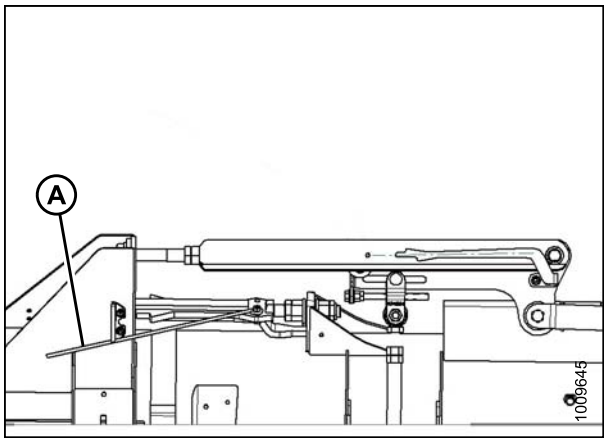


Figure 7.38: Wing Lock in Unlock Position

7. Retrieve wrench (A) from adapter leg.

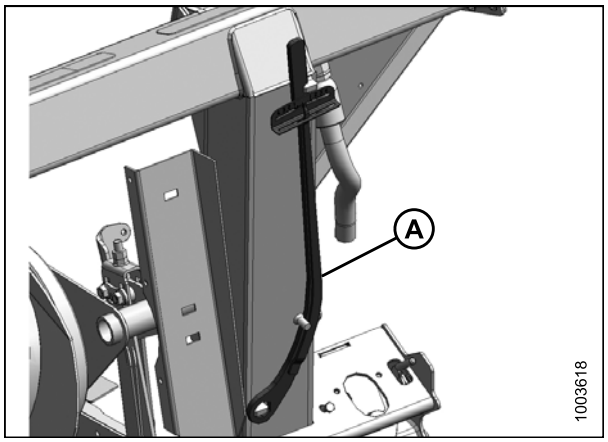


Figure 7.39: Torque Wrench

8. Place torque wrench (A) on bolt (B).

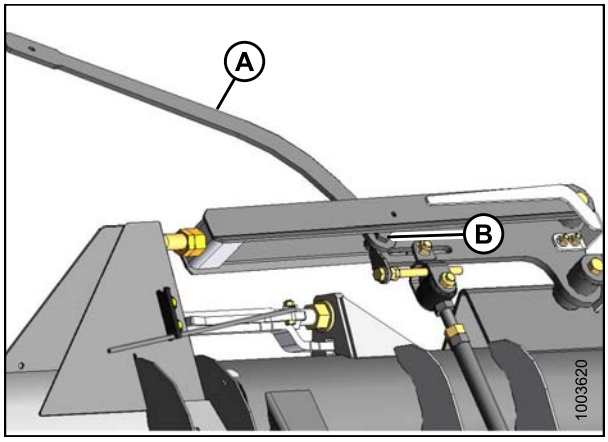


Figure 7.40: Balance Linkage

9. Loosen the clevis bolt (A) for the wing requiring adjustment as determined by the wing balance check.

NOTE:

Do not loosen any other hardware

10. Adjust bolt (B) and set dimension (B) from Table *7.3 Wing Balance Chart, page 109*.

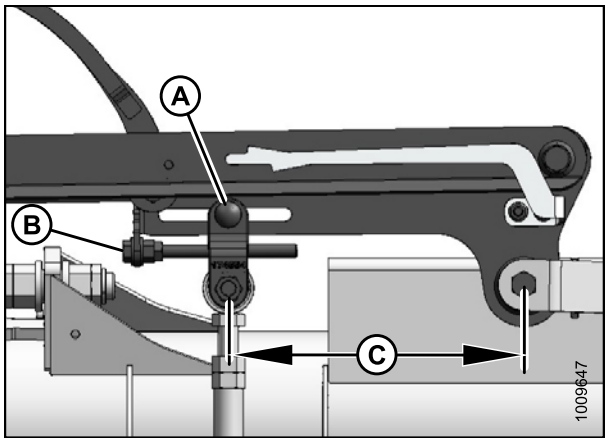


Figure 7.41: Balance Linkage

NOTE:

The dimensions listed are initial settings. Further adjustment will be required if any optional kits have been installed by the Dealer.

Table 7.3 Wing Balance Chart

Header Configuration	Wing Dimension (B)	
	Left Wing in. (mm)	Right Wing in. (mm)
30-foot	11-13/32 (290)	11-1/4 (285)
35-foot	11-13/16 (300)	11-13/16 (300)
40-foot single-knife drive (SKD)	12 (305)	12-19/32 (320)
40-foot double-knife drive (DKD)	12 (305)	12-3/16 (310)
40-foot double-knife drive (DKD) split frame	12 (305)	12-3/16 (310)
45-foot double-knife drive (DKD) split frame	12-3/16 (310)	12-3/16 (310)

11. Recheck the wing balance. Refer to *7.9.1 Checking Wing Balance, page 102*.
12. If necessary, perform the following adjustments:
    - If the wing is too heavy, turn adjuster bolt (B) to move clevis (C) outboard (D).
    - If the wing is too light, turn adjuster bolt (B) to move clevis (C) inboard (E).
13. Adjust clevis (C) position if necessary until indicator readings are within one increment.
14. Tighten clevis bolt (A).

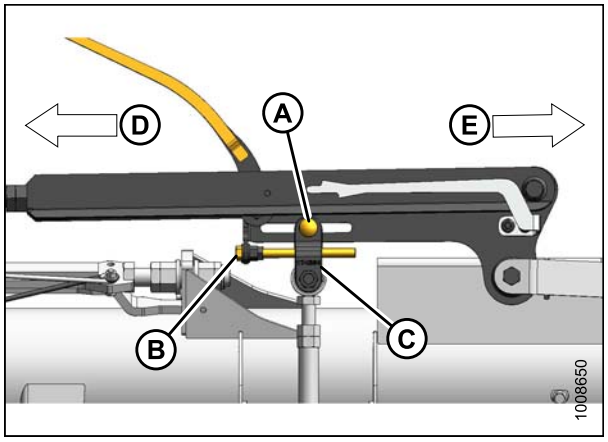


Figure 7.42: Balance Linkage

A - Clevis Bolt
B - Adjuster Bolt
C - Clevis
D - Outboard
E - Inboard

15. Move handle to the upper LOCK position.
16. If lock does not engage, move the wing up and down with torque wrench until it locks. When locked, there will be some movement in the linkage.
17. If the cutterbar is not straight when wings are in lock mode, then further adjustments are required.

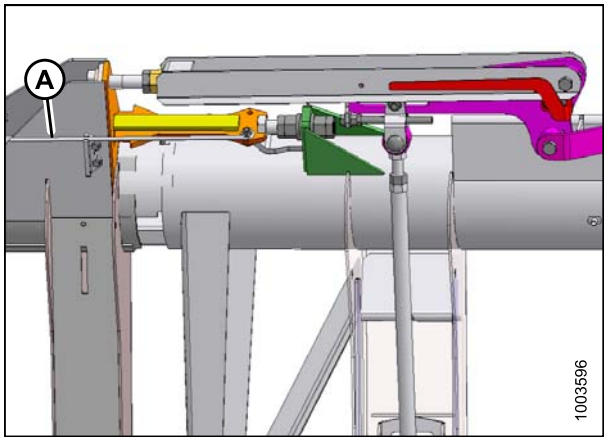


Figure 7.43: Wing Lock in Lock Position

18. Replace torque wrench on adapter frame.
19. Reinstall linkage cover (A), secure with bolt (B).

NOTE:

Adjustment to the main float may be required to maintain good wing balance when operating in the field. Refer to Step *15, page 101*.

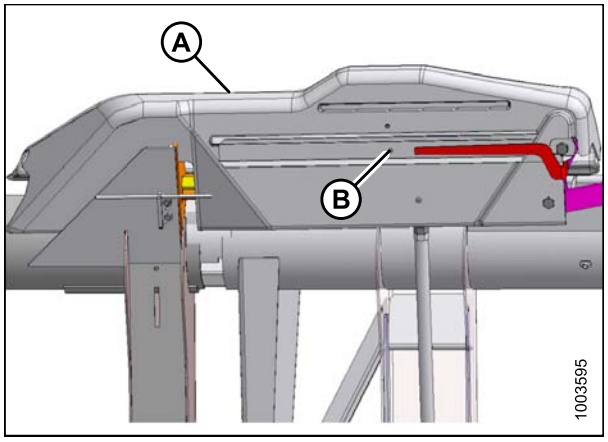


Figure 7.44: Linkage Cover

7.10 Measuring and Adjusting Reel Clearance to Cutterbar

The finger to guard/cutterbar clearance measurements with reels fully lowered vary with header width and are shown in the tables below.

These measurements are to be taken at **BOTH ENDS OF EACH REEL AND AT THE CUTTERBAR FLEX LOCATIONS** with the header in full-frown mode.

Table 7.4 Finger to Guard/Cutterbar Clearance

Header Width	'X' +/- 1/8 in. (3 mm) at Reel Ends	
	Single Reel	Double Reel
15 ft.	3/4 in. (20 mm)	–
20 ft.		
25 ft.	1 in. (25 mm)	
30 ft.	1-3/4 in. (45 mm)	3/4 in. (20 mm)
35 ft.	2-3/8 in. (60 mm)	
40 ft.	–	
45 ft.		

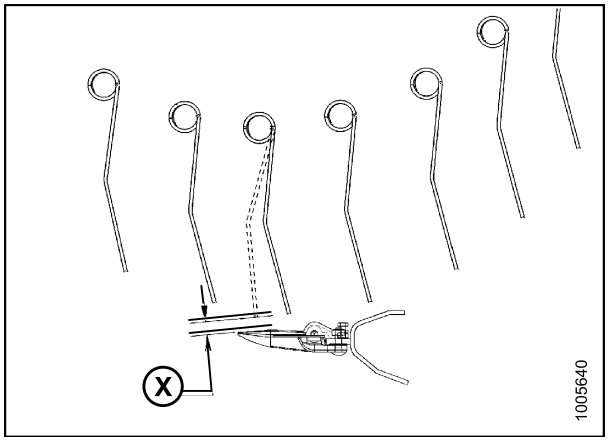


Figure 7.45: Clearance with Reel Fully Lowered

Table 7.5 Finger to Guard/Cutterbar Clearance

Header Width	'X' +/- 1/8 in. (3 mm) at Reel Ends and Flex Locations
	Double Reel
30 ft.	3/4 in. (20 mm)
35 ft.	3/4 in. (20 mm)
40 ft.	3/4 in. (20 mm)
45 ft.	3/4 in. (20 mm)

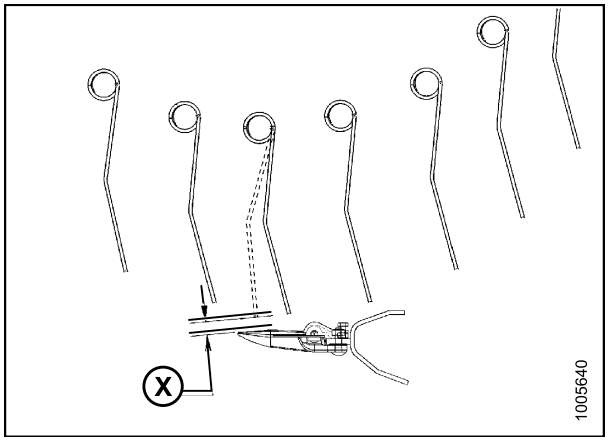


Figure 7.46: Clearance at Both Ends of Reel

7.10.1 Measuring Reel Clearance

To measure the finger-to-guard/cutterbar clearance, follow these steps:

DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See yourcombine Operator's Manual for instructions regarding the proper use and storage of header safety props.

1. Park header on level ground.
2. Move spring handles (A) down to unlock position.

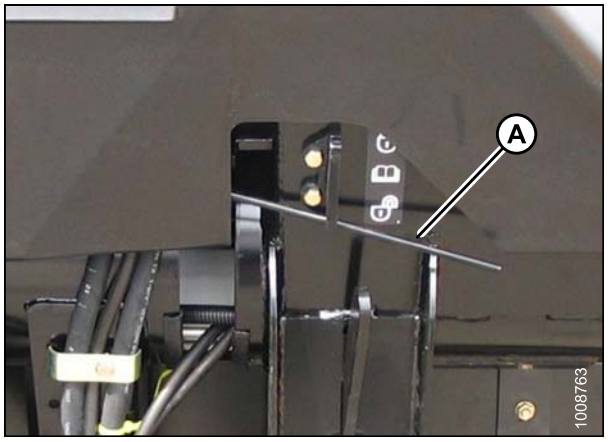


Figure 7.47: Wing Lock in Unlock Position

3. Raise header and place two 6 in. (150 mm) blocks (A) under the cutterbar, just inboard of the wing flex points.
4. Lower header fully, allowing it to flex into 'full frown' mode.

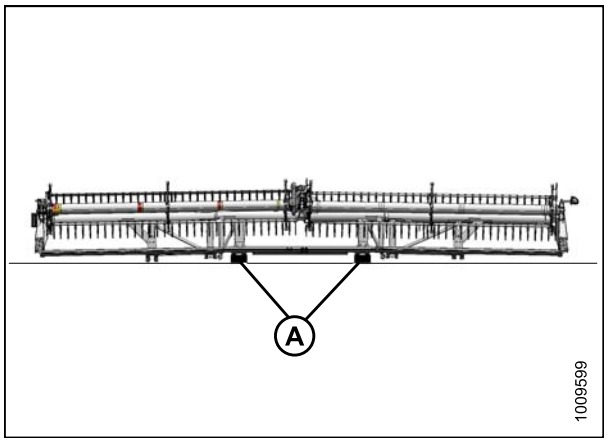


Figure 7.48: FlexDraper® Block Locations

5. Adjust reel fore-aft position so that back end of cam disc is at mid–position ('5' on the reel arm indicator decal).
6. Fully lower the reel.
7. Shut down engine. Remove key from ignition.

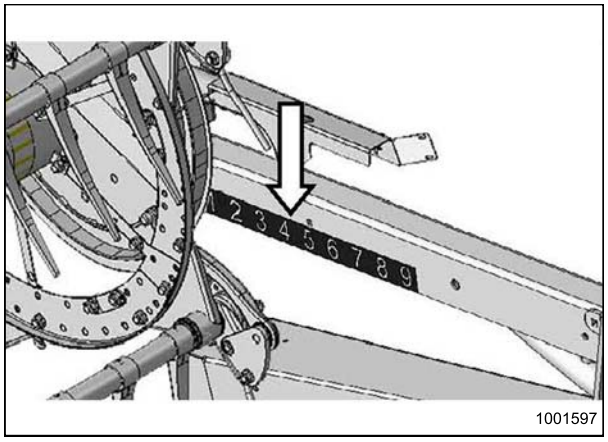


Figure 7.49: Fore-Aft Position

8. Measure clearance ‘X’ between points ‘Y’ and ‘Z’ at ends (A) of each reel and header flex points (B). Depending on reel fore-aft position, minimum clearance can occur at guard tine, hold-down or cutterbar.

NOTE:

The reel has been adjusted at the factory to provide more clearance at the center of the reel than at the ends (frown) to compensate for reel flexing.

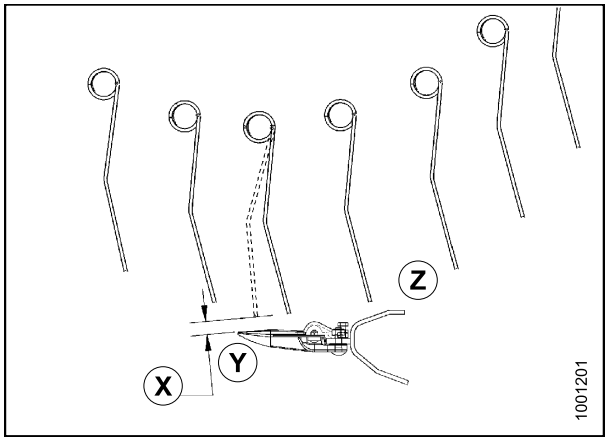


Figure 7.50: Clearance

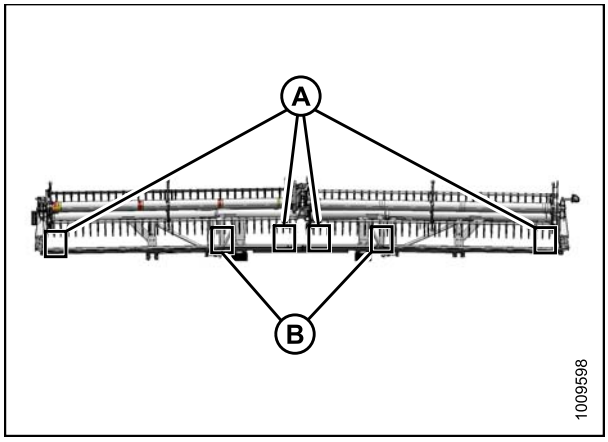


Figure 7.51: Double-Reel Measurement Locations

7.10.2 Adjusting Reel Clearance

.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. See yourcombine Operator’s Manual for instructions regarding the proper use and storage of header safety props.

1. Adjust outboard reel arms to change clearance at outboard ends of reel as follows:
   a. Loosen bolt (A).
   b. Turn cylinder rod (B) out of clevis to raise reel and increase clearance to cutterbar, or turn cylinder rod into clevis to lower reel and decrease clearance.
   c. Tighten bolt (A).
   d. Repeat at opposite side.

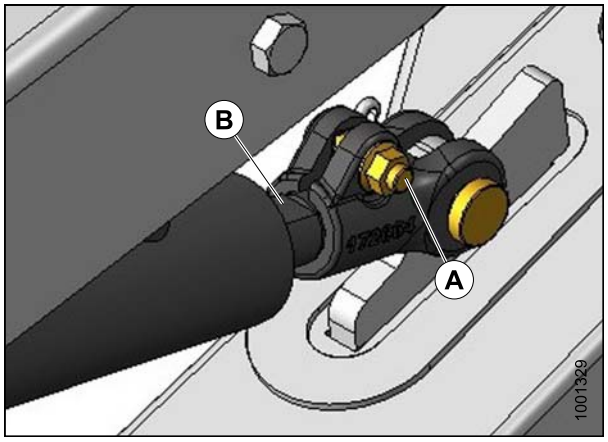


Figure 7.52: Outside Reel Arm

2. Adjust center arm lift cylinder stop (A) to change clearance at inboard ends of reels and clearance at flex points as follows:
   a. Loosen nut (B).
   b. Turn nut (C) counterclockwise to raise reel and increase clearance to cutterbar, or clockwise to lower reel and decrease clearance.
   c. Tighten nut (B).

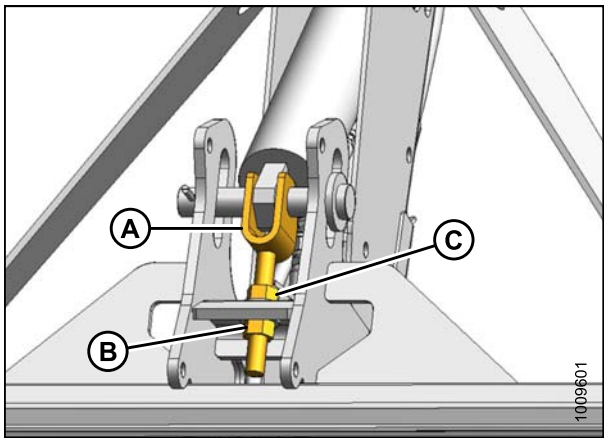


Figure 7.53: Looking Up at Arm Underside

7.11 Checking and Adjusting Draper Seal

To check the draper seal, follow these steps:

1. Check deck height. Draper (A) should run just below cutterbar (B) with a maximum 1/32 in. (1 mm) gap, or with draper deflected down slightly (up to 1/16 in. [1.5 mm]) to create a seal.

NOTE:

Measurement is at supports with header in working position and decks slid fully ahead.

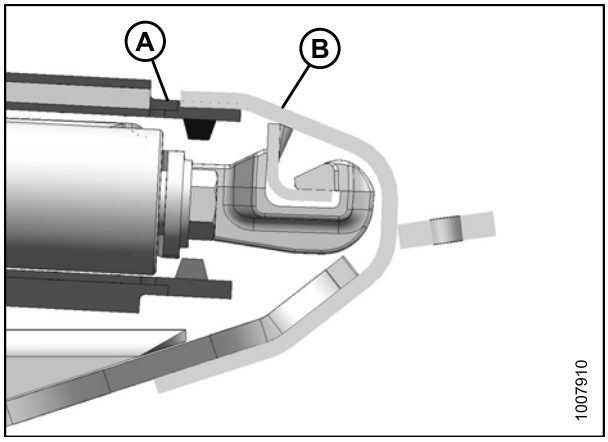


Figure 7.54: Draper Height Measurement

If deck height is acceptable, skip the remaining steps. If deck height is not acceptable, adjust seal as described in the following steps:

2. Loosen tension on drapers. For instructions, refer to *7.12 Adjusting Side Draper Tension, page 117*.
3. Lift draper (A) up at front edge past cutterbar (B).

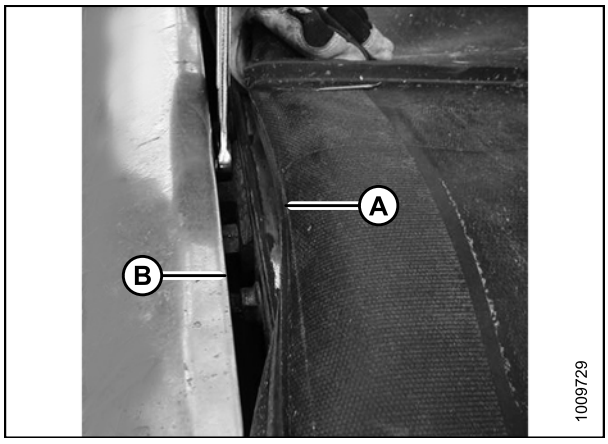


Figure 7.55: Draper Adjustment

4. Loosen two lock nuts (A) only one-half-turn on deck support (B).

NOTE:

There are between two and eight supports per deck depending on header size.

5. Tap deck (C) to lower deck relative to supports and achieve the recommended setting. Tap support (B) using a punch to raise deck relative to supports.
6. Tighten deck support hardware (A).

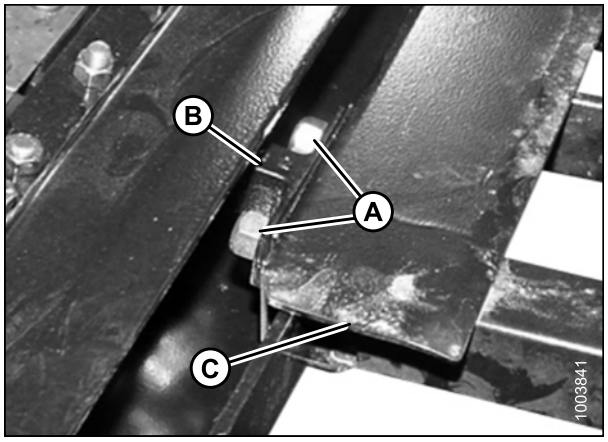


Figure 7.56: Draper Removed for Clarity

7. Tension drapers. For instructions, refer to *7.12 Adjusting Side Draper Tension, page 117*.

7.12 Adjusting Side Draper Tension

Draper tension should be just enough to prevent slipping, and to keep the draper from sagging below the cutterbar.

WARNING

To avoid bodily injury or death from unexpected start-up or fall of raised machine, stop engine, remove key, and engage safety props before going under machine for any reason.

To adjust the header draper tension, follow these steps:

1. Raise header, and shut down engine. Engage header lift props.
2. Check that draper guide (rubber track on underside of draper) is properly engaged in groove of drive roller (A) and that idler roller (B) is between the guides.

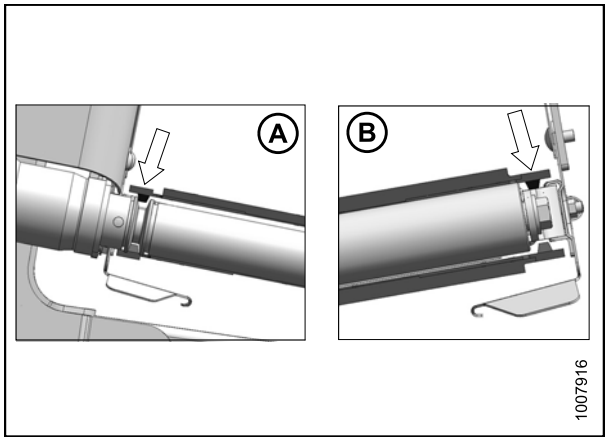


Figure 7.57: Draper Guides

A - Drive Roller – One End **B - Idler Roller – Both Ends**

3. To tighten, turn bolt (A) clockwise. The white indicator bar (B) will move inboard, indicating that draper is tightening. Tighten until bar is about halfway in window.
4. To loosen, turn bolt (A) counterclockwise. The white indicator bar (B) will move outboard, indicating that draper is loosening. Loosen until bar is about halfway in window.

IMPORTANT:

To avoid premature failure of draper, draper rollers and/or tightener components, do **NOT** operate with tension set so that white bar is not visible. Also, to prevent draper from scooping dirt, ensure draper is tight enough that it does not sag below point where cutterbar contacts the ground.

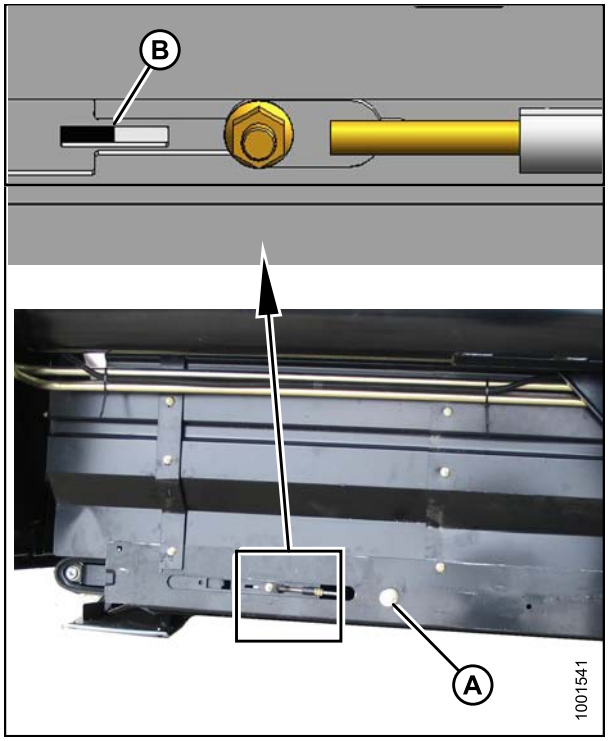


Figure 7.58: Tension Adjuster: Left Shown, Right Opposite

7.13 Lubricating the Header

Table 7.6 Recommended Lubricant

Specification	Description	Use
SAE Multipurpose	High Temperature, Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base	As required unless otherwise specified
	High Temperature, Extreme Pressure (EP) Performance With 10% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base	Driveline slip-joints

7.13.1 Greasing Procedure

Greasing points are marked on the machine by decals showing a grease gun and grease interval in hours of operation. Master grease point location decals as shown below are provided on the header and adapter back frame.

CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

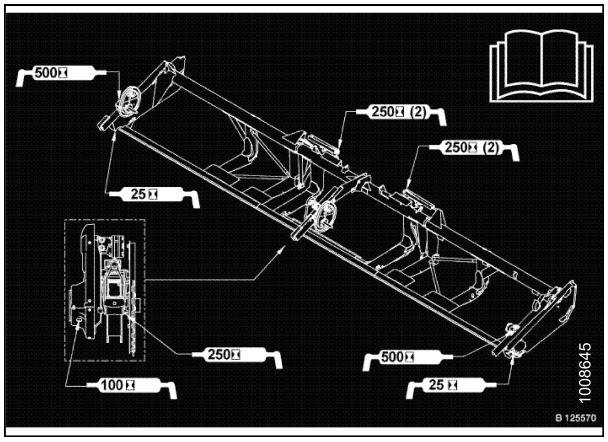


Figure 7.59: FD75

1. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
2. Inject grease through fitting with grease gun until grease overflows fitting, except where noted.
3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. If fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.
6. Use clean High Temperature Extreme Pressure grease as shown.

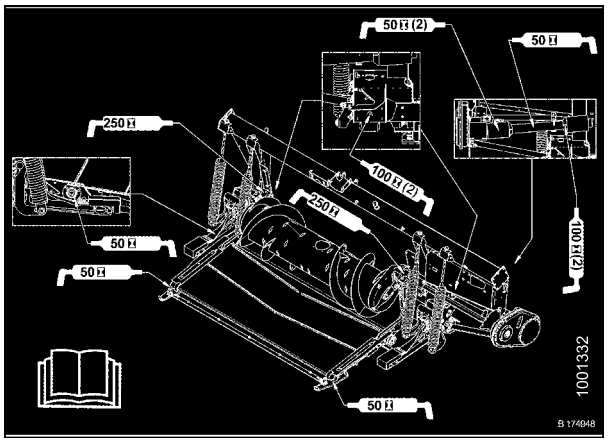


Figure 7.60: CA25 Adapter

7.13.2 Lubrication Points

Refer to the illustrations on the following pages to identify the various locations that require lubrication.

Knifehead

NOTE:

- To prevent binding and/or excessive wear caused by knife pressing on guards, do **NOT** over grease the knifehead (A).
- Only 1–2 pumps with a mechanical grease gun (do **NOT** use an electric grease gun) is required.
- If more than 6–8 pumps of the grease gun are required to fill the cavity, replace the seal in the knifehead.

NOTE:

Check for signs of excessive heating on first few guards after greasing. If required, relieve pressure by pressing check-ball in grease fitting.

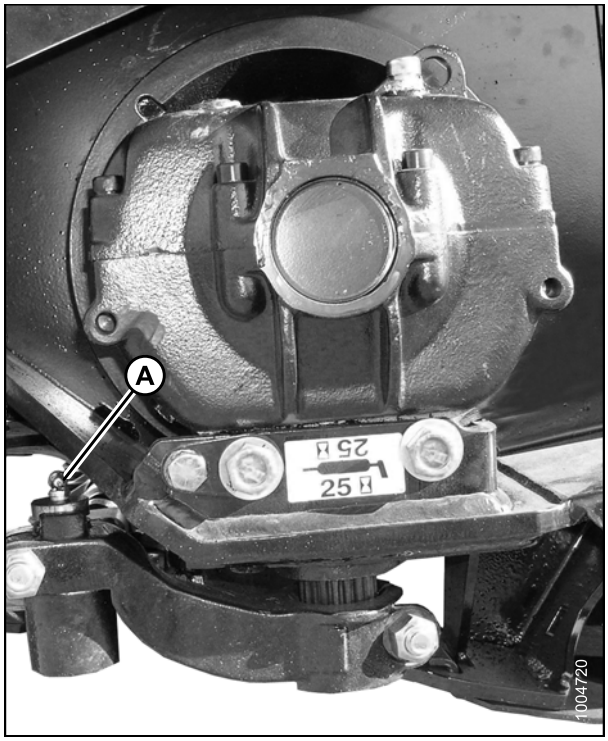


Figure 7.61: Knifehead (Single Knife - 1 Place) (Double Knife - 2 Places)

Drive Roller Bearing, Idler Roller, Slip Joint and Driveline Universal

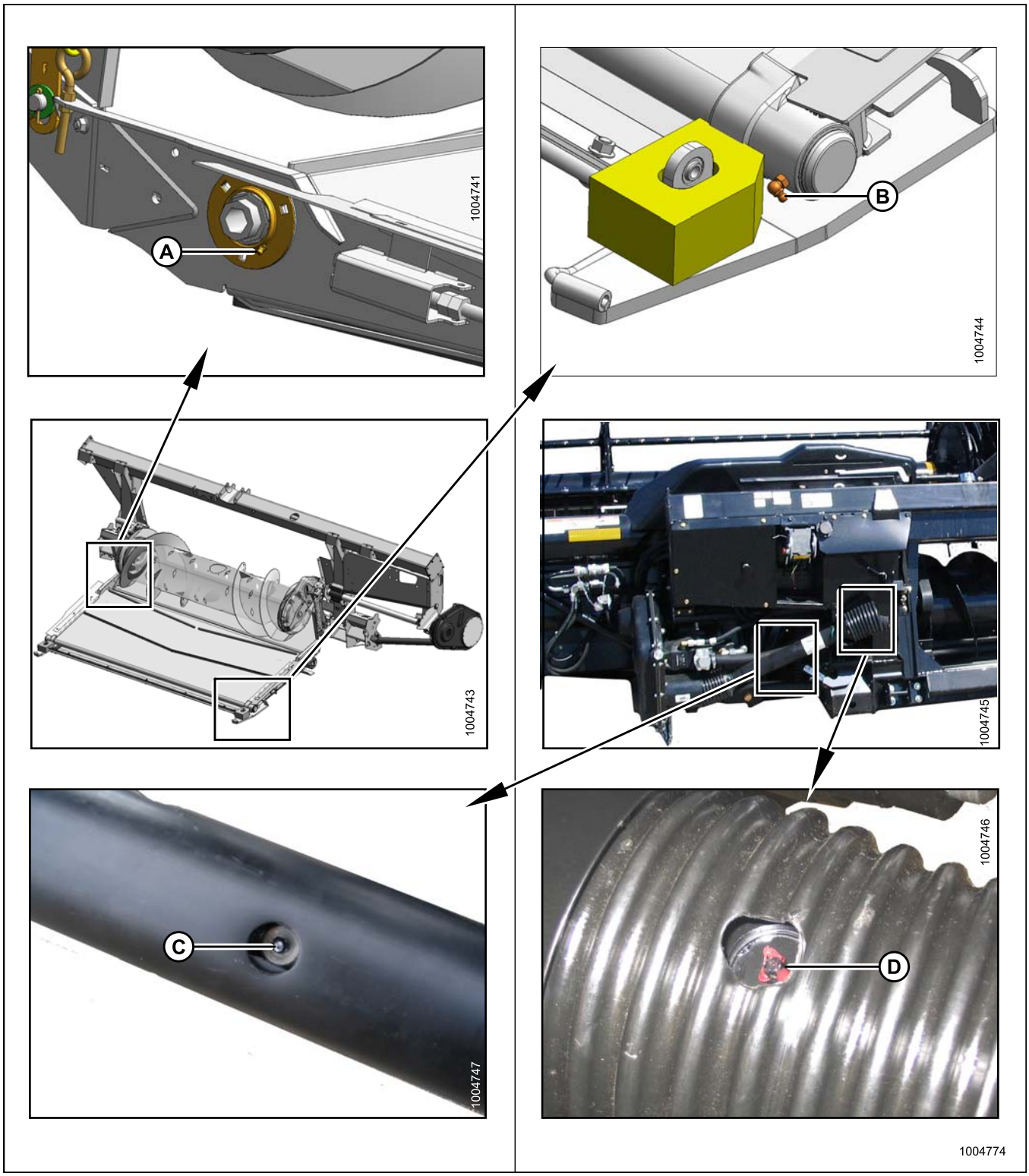


Figure 7.62: Use High Temperature Extreme Pressure (EP2) Performance with 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base.

A - Drive Roller Bearing **B - Idler Roller - Both Sides** **C - Driveline Slip Joint** **D - Driveline Universal (2 Places)**

Upper Cross Auger and Knife Drive (Double-Knife Timed Drive)

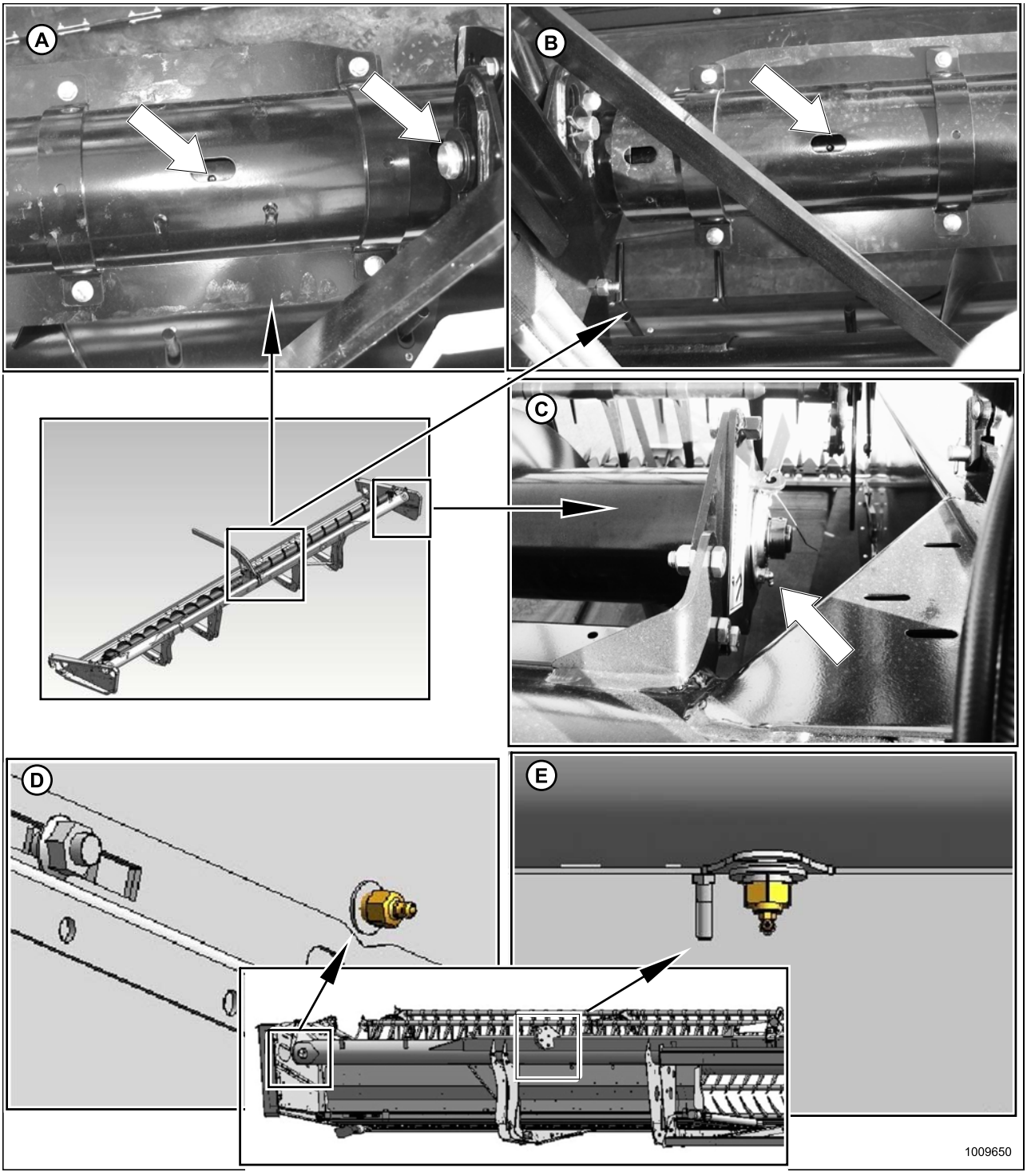


Figure 7.63: Use High Temperature Extreme Pressure (EP2) Performance with 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base.

A - Upper Cross Auger U-Joint and Bearing **B - Upper Cross Auger Bearing (1 Place)** **C - Upper Cross Auger (1 Place)**
D - Knife Drive Bearing - Double Knife Timed Drive (Both Sides) **E - Knife Drive Shaft - Double-Knife Timed Drive (Both Sides) 15 Pumps Minimum**

Float Pivot, Driveline Guard, Flex Linkage and Auger Pivot

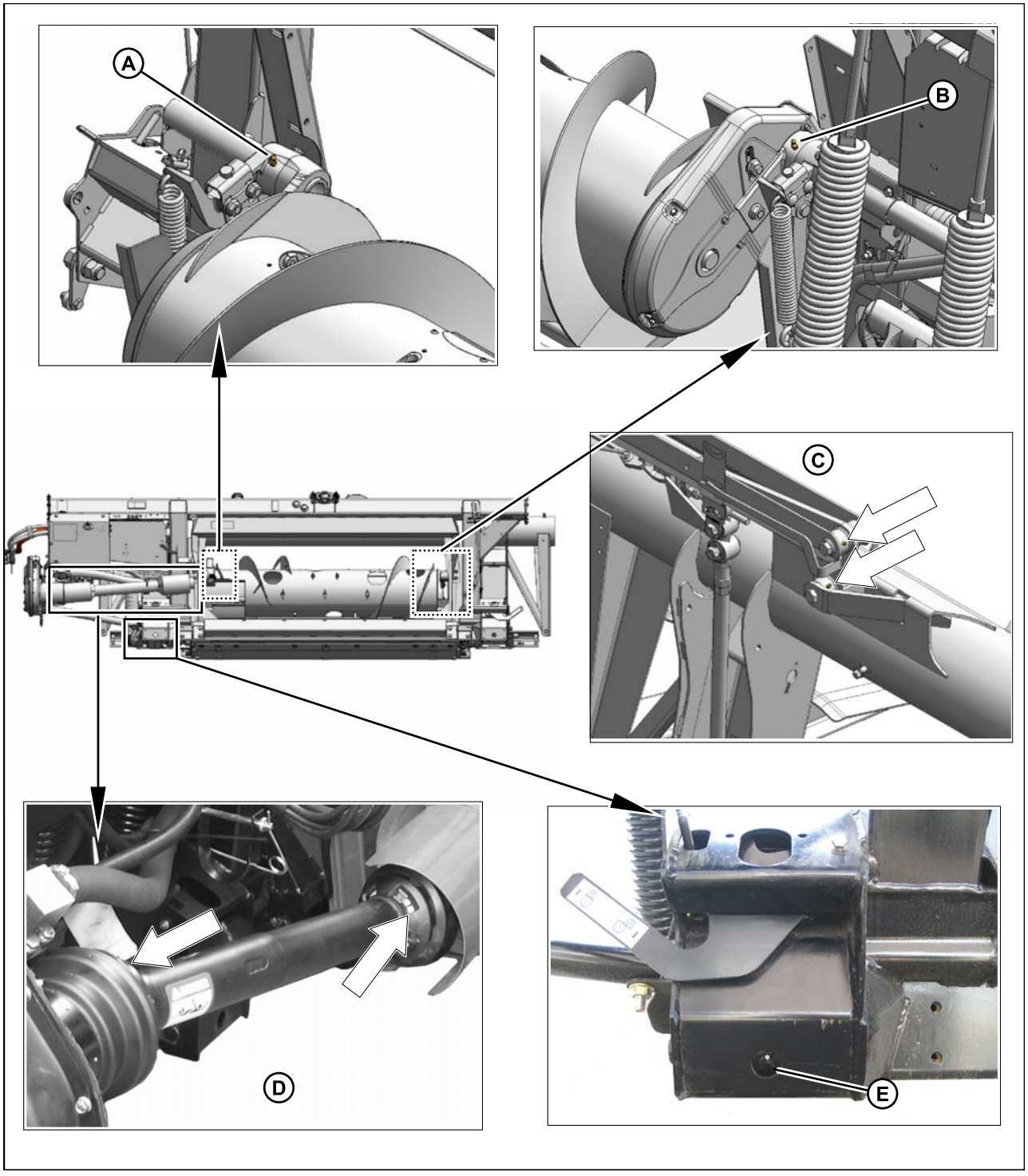


Figure 7.64: Use High Temperature Extreme Pressure (EP2) Performance with 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base.

A - Auger Pivot (1st Place)
B - Auger Pivot (2nd Place)
C - Flex Linkage (2 Places) (Both Sides)
D - Driveline Guard (2 Places)
E - Float Pivot (2 Places)

Reel Shaft Bearings

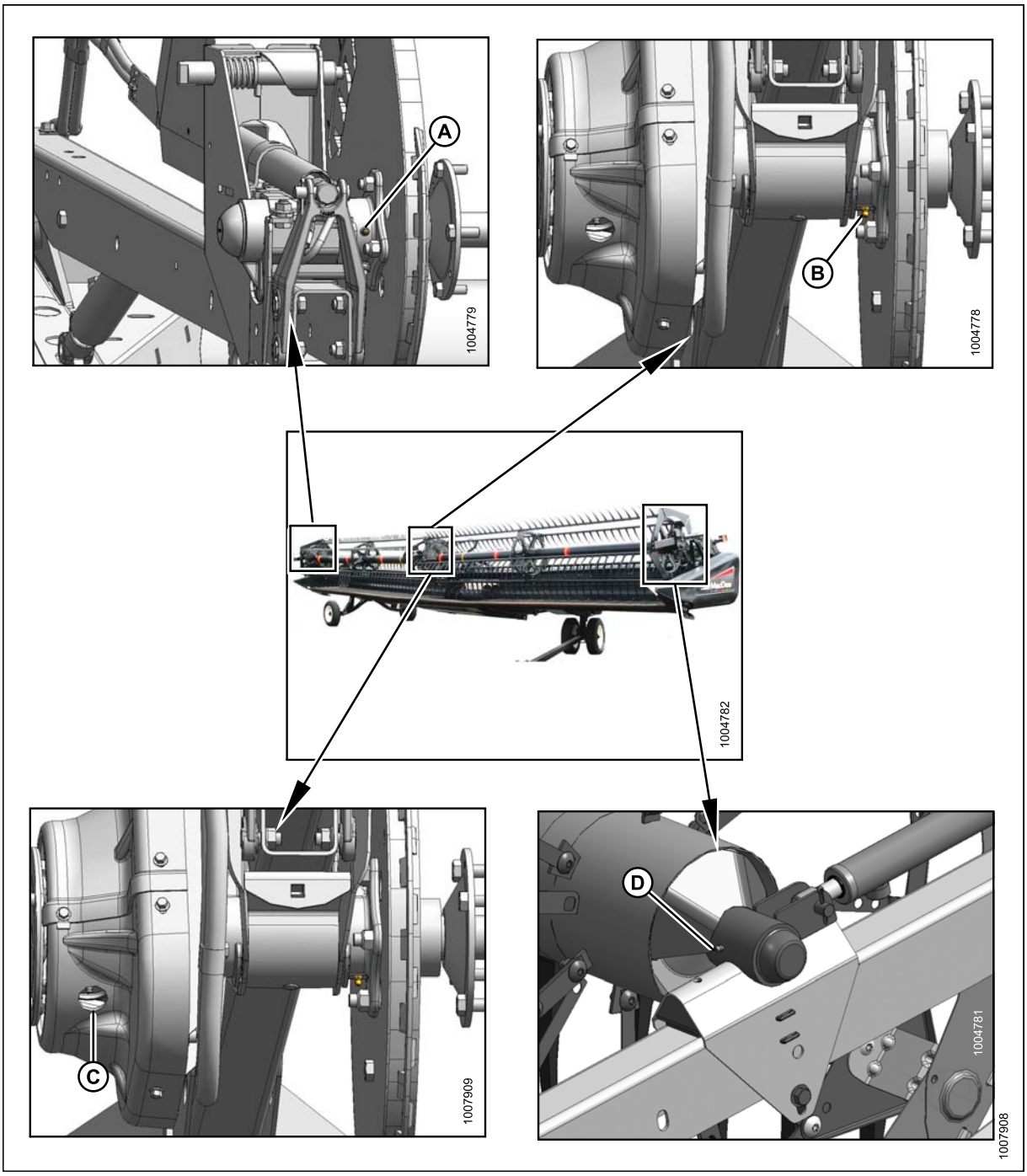


Figure 7.65: Use High Temperature Extreme Pressure (EP2) Performance with 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base.

IMPORTANT:

U-joint has an extended lubrication cross and bearing kit. Stop greasing when greasing becomes difficult or if U-joint stops taking grease. OVERGREASING WILL DAMAGE U-JOINT. Six to eight pumps is sufficient at first grease (factory). Decrease grease interval as U-joint wears and requires more than six pumps.

A - Reel Shaft Right-Hand Bearing (1 Place)

B - Reel Center Bearing (1 Place)

C - Reel Universal (1 Place)

D - Reel Shaft Left-Hand Bearing (1 Place)

Rear Wheel Axle, Wheel Bearings, Frame/Wheel Pivot, Front Wheel Pivot

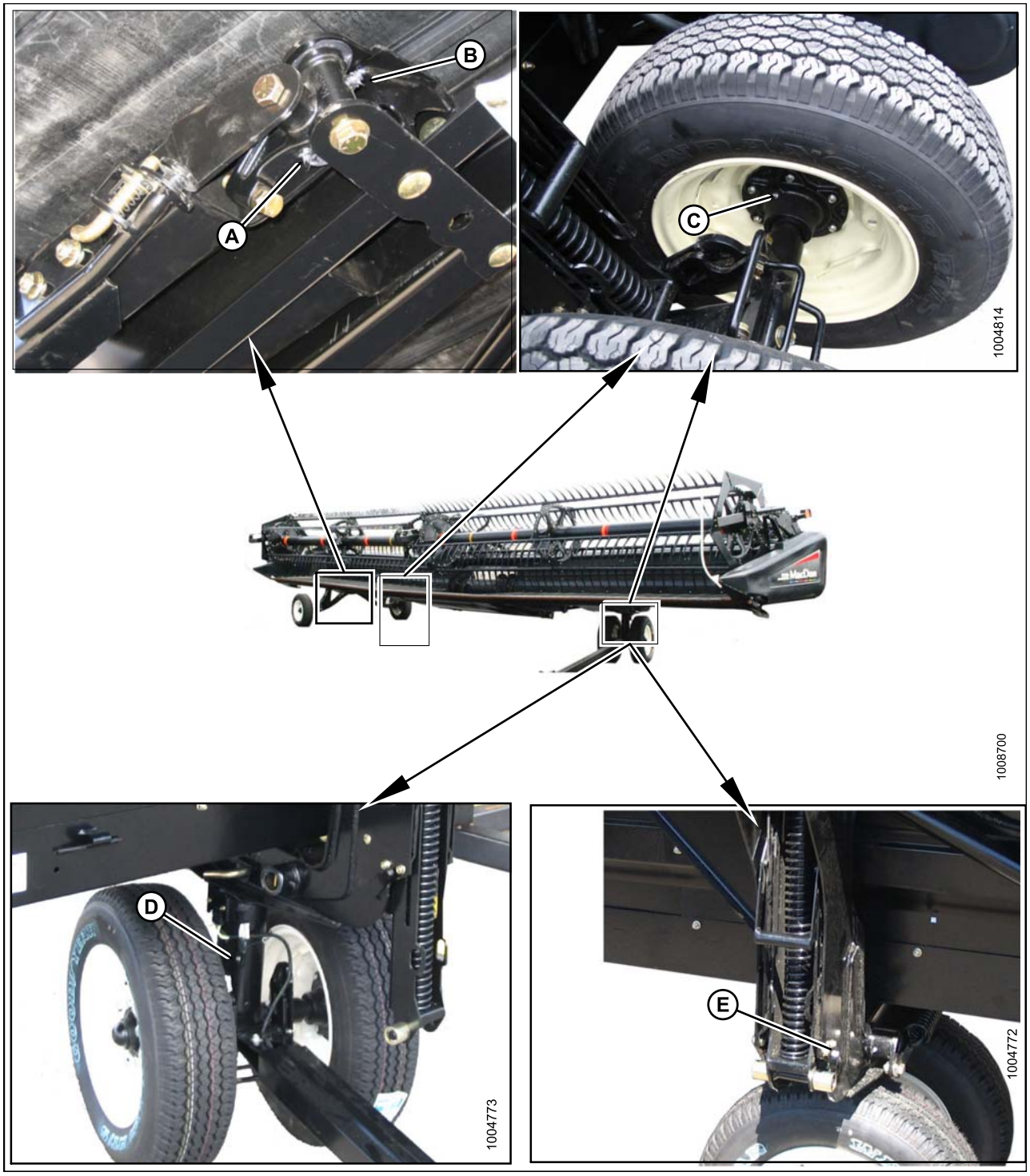


Figure 7.66: Use High Temperature Extreme Pressure (EP2) Performance with 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base.

A - Rear Wheel Axle (1st Place)
B - Rear Wheel Axle (2nd Place)
C - Wheel Bearings (4 Places)
D - Front Wheel Pivot (1 Place)
E - Frame/Wheel Pivot (1 Place) Both Sides

7.14 Checking and Adjusting Endshields

Plastic endshields are subject to expansion or contraction depending on large temperature variations. The position of the top pin and lower catch can be adjusted to compensate for dimensional changes.

1. Check gap **'X'** between front end of shields and header frame, and compare against values in chart below.

Table 7.7 Gap "X" at Different Temperatures

Temperature in Degrees °F (°C)	Gap "X" in Inches (mm)
25 (–4)	1–1/10 (28)
45 (7)	1 (24)
65 (18)	13/16 (20)
85 (29)	5/8 (16)
105 (41)	1/2 (12)
125 (52)	5/16 (8)
145 (63)	3/16 (4)
165 (89)	0

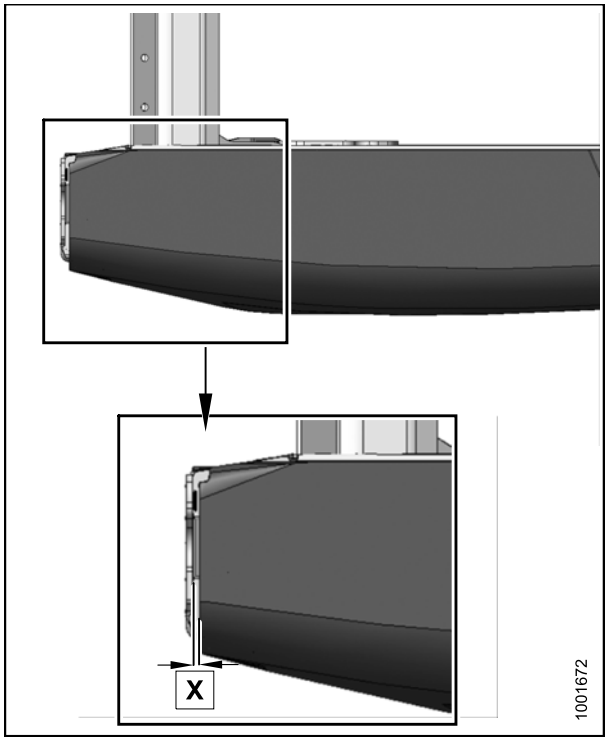


Figure 7.67: Gap between Endshield and Header Frame

If the gap is correct, skip the remaining steps. If the gap is incorrect, open the endshield and adjust the gap as described in the following steps:

2. Remove lynch pin (A) and tool (B) from pin (C) at top rear of endshield.

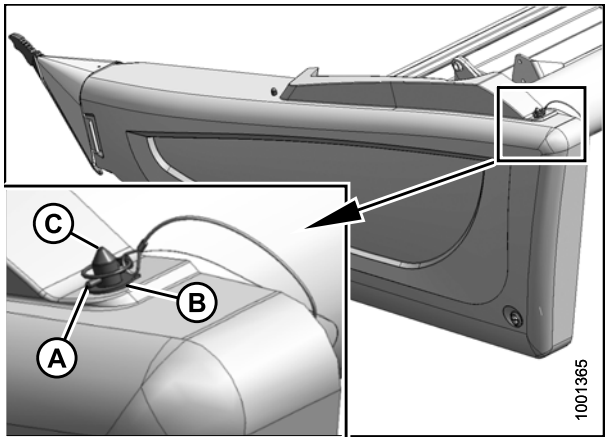


Figure 7.68: Left-Hand Endshield

3. Use tool (B) to unlock latch (A) at lower rear corner of endshield.
4. Lift shield at aft end to clear pin.
5. Swing shield out and away from header while maintaining forward pressure to prevent shield from slipping out of tab (C) at front of endsheet.

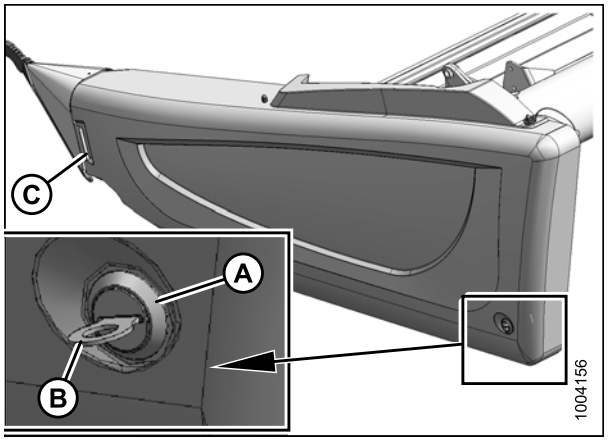


Figure 7.69: Tool to Unlock Left-Hand Endshield

Adjusting the Endshield Gap:

6. From inside endsheet, loosen nut (A) on pin (B).
7. Close endshield and adjust position to achieve gap **'X'** between the front end of shield and header frame in accordance with Table .
8. Open endshield, and tighten nut (A).
9. Check for a snug fit between top of shield and header frame, and for full engagement of endshield on pin (B).
10. If necessary, loosen bolts on catch (C), and adjust catch as required to reposition shield.
11. Tighten bolts on catch (C).
12. Close endshield.

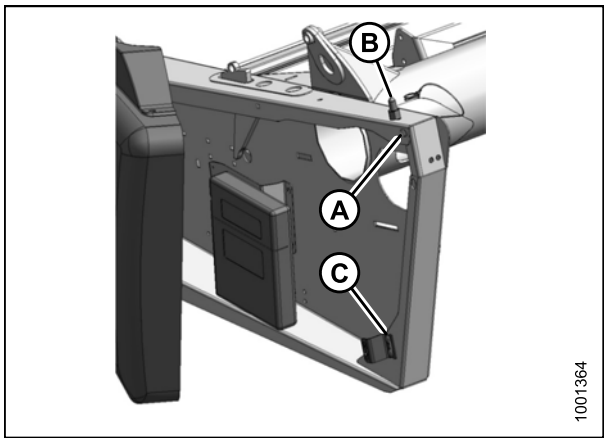


Figure 7.70: Endshield Gap

7.15 Checking Manuals

Check manual case contents. The manual case is located inside the left-hand endshield.

1. Open the left-hand endshield, and remove the cable tie on the manual case.

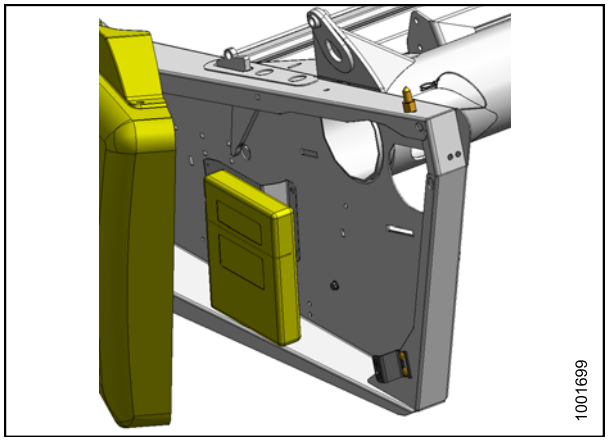


Figure 7.71: Manual Case

2. Confirm that the case contains the following manuals:
   - FD75 FlexDraper® Operator's Manual (MD #169894)
   - FD75 FlexDraper® Parts Catalog (MD #169895)
   - CA25 Combine Adapter Parts Catalog (MD #169598)
   - FD75 FlexDraper® Quick Card (MD #169601)
3. Close case and endshield.

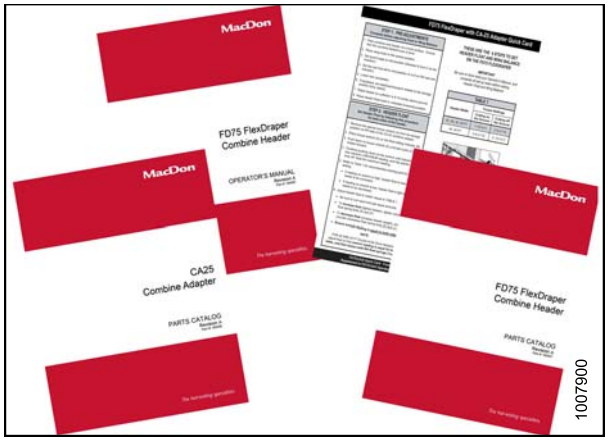


Figure 7.72: FD75 and CA25 Manuals

8 Auto Header Height Control

8.1 Auto Header Height Control

MacDon's Auto Header Height feature works in conjunction with the Auto Header Height Control option available on certain combine models.

A sensor is installed in the float indicator box (A) on the CA25 Combine Adapter. This sensor sends a signal to the combine to allow it to maintain a consistent cutting height, and optimum adapter float as the header follows ground contours.

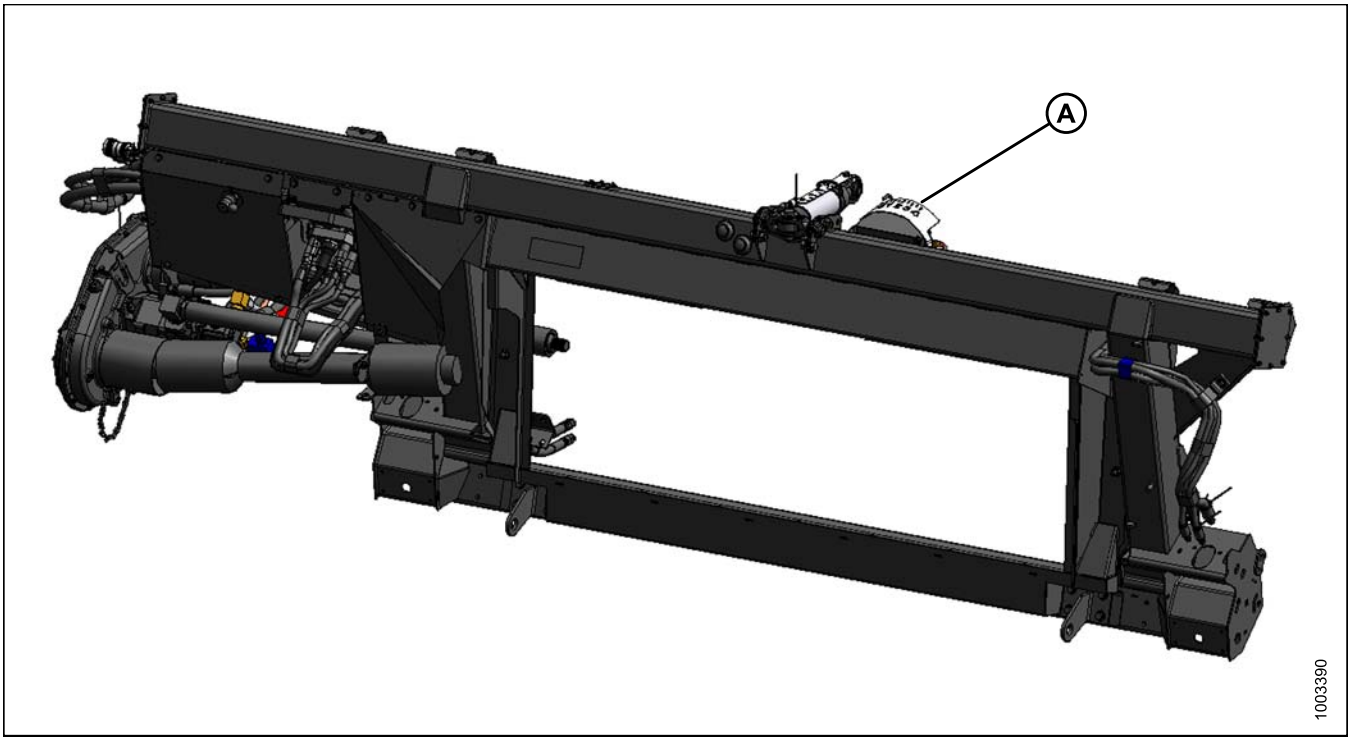


Figure 8.1: CA25 Combine Adapter

CA25 Combine Adapters are factory-equipped for Auto Header Height. However, before using the Auto Header Height feature, you must:

1. Ensure that the Auto Header Height sensor's output voltage range is appropriate for the combine.
   For more information, refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*.
2. Prepare the combine to use the Auto Header Height feature (only applies to some combine models; refer to the instructions for your combine).
3. Calibrate the Auto Header Height system so that the combine can correctly interpret data from the height sensor on the combine adapter (refer to the instructions for your combine).
4. Once calibration is complete, you are ready to use the Auto Header Height feature in the field. For each combine, certain operation settings can be used to improve the performance of the Auto Header Height feature (refer to the instructions for your combine).

NOTE:

If your CA25 Combine Adapter is not equipped to work with a specific combine model, you will need to install the appropriate combine completion package. That completion package will come with instructions for installing the Auto Header Height sensor on the combine adapter.

Combine specific instructions are available here:

- *8.1.2 AGCO 6 and 7 Series Combines, page 133*
- *8.1.3 Case IH 2300/2500 Combines, page 140*
- *8.1.4 Case IH 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines, page 142*
- *8.1.5 Gleaner R62/R72 Combines, page 149*
- *8.1.6 Gleaner R65/R75 Combines, page 152*
- *8.1.7 John Deere 50 Series Combines, page 161*
- *8.1.8 John Deere 60 Series Combines, page 164*
- *8.1.9 John Deere 70 Series Combines, page 170*
- *8.1.10 John Deere S Series Combines, page 176*
- *8.1.11 Lexion 500 Series Combines, page 184*
- *8.1.12 Lexion 700 Series Combines, page 194*
- *8.1.13 New Holland Combines, page 200*

8.1.1 Height Sensor Output Voltage Range – Combine Requirements

The Auto Header Height sensor output must be within a specific voltage range for each combine or the Auto Header Height feature will not work properly.

Table 8.1 Combine Voltage Limits

Combine	Low Voltage Limit	High Voltage Limit	Range (Difference between High and Low Limits)
Challenger, Gleaner A, Massey Ferguson	0.5 V	4.5 V	3.0 V
Case IH 7/8010, 5/6/7088, 7/8/9120, 5/6/7130, 7/8/9230	0.5 V	4.5 V	2.0 V
Case IH 2300/2500	2.8 V	7.2 V	4.0 V
Gleaner R and S Series	1.0 V	4.0 V	2.0 V
John Deere 50/60/70/S Series	0.5 V	4.5 V	3.0 V
Lexion 500/600/700 Series	0.5 V	4.5 V	2.5 V
New Holland CR/CX - 5 V system	0.7 V	4.3 V	2.5 V
New Holland CR/CX - 10 V system	2.8 V	7.2 V	4.1–4.4 V

NOTE:

Some combine models do not support checking sensor output voltage from the cab (early 23/2588 series, Lexion 500/700 series.) For these models, check output voltage manually – Refer to *Manually Checking Voltage Range, page 131*.

Manually Checking Voltage Range

You can manually check the output voltage range of the auto header height sensor at the float indicator box. Some combines will allow you to check the voltage range from the cab. For instructions, refer to your combine operator's manual or the auto header height instructions for your combine model later in this document.

To manually check the sensor's output voltage range, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

3. Using a voltmeter (A), measure the voltage between the ground and signal wires at the Auto Header Height sensor in the float indicator box. It should be at the high voltage limit for the combine, Refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*.

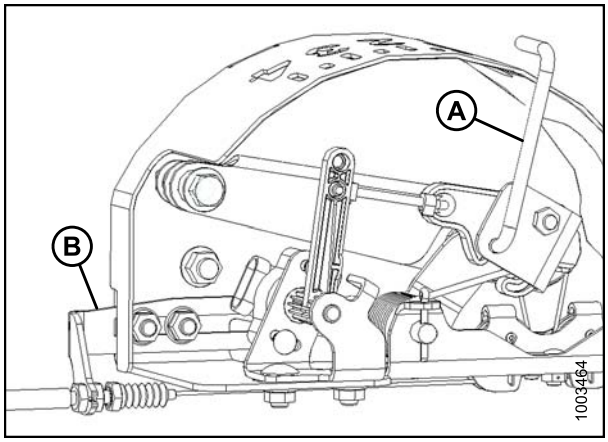


Figure 8.2: Float Indicator Box

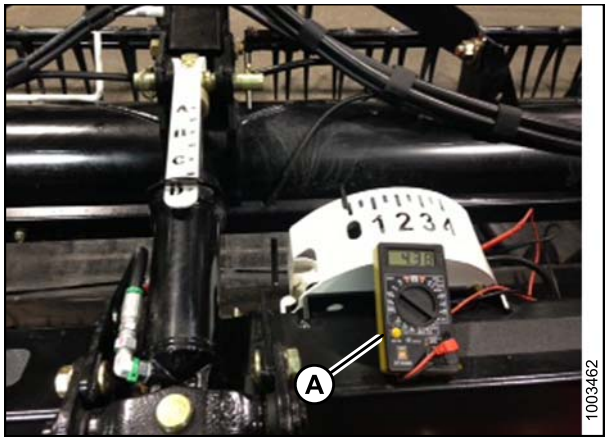


Figure 8.3: Measuring Voltage Between Ground and Signal Wires with a Voltmeter

4. Fully lower the combine feeder house and float the header up off the down stops (float indicator should be on 4 and the adapter should be fully separated from the header).

NOTE:

You may need to hold the header down switch for a few seconds to ensure the feeder house is entirely down.

5. Using a voltmeter (A), measure the voltage between the ground and signal wires at the Auto Header Height sensor in the float indicator box. It should be at the low voltage limit for the combine, Refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*.
6. If the sensor voltage is not within the low and high limits, Refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to *Adjusting Voltage Limits, page 132* for instructions.

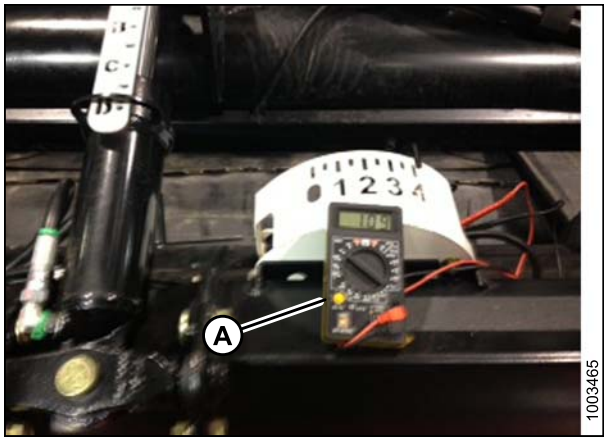


Figure 8.4: Measuring Voltage Between Ground and Signal Wires with a Voltmeter

Adjusting Voltage Limits

Procedure for adjusting voltage limits.

NOTE:

The sensor assemblies used with Lexion and some New Holland combines are slightly different from the sensor assemblies used with other combine models. All three assemblies are illustrated here.

1. To adjust high voltage limit, follow these steps:
   a. Fully extend guard angle; the header angle indicator should be at D.
   b. Position header 6–10 in. above the ground; the float indicator should be at 0.
   c. Loosen sensor mounting bolts (A).
   d. Slide sensor support (B) to the right to increase the high voltage limit and to the left to decrease it.
   e. Tighten sensor mounting bolts (A).

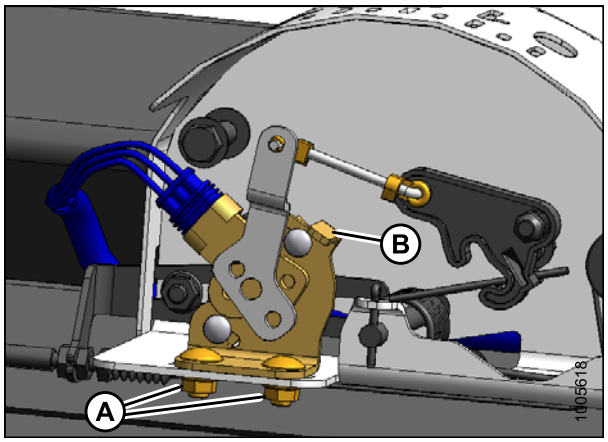


Figure 8.5: Auto Header Height Sensor Assembly for Use with Lexion Combines

2. To adjust low voltage limit, follow these steps:
   a. Fully extend guard angle; the header angle indicator should be at D.
   b. Lower header fully on the ground; the float indicator should be at 4.
   c. Loosen mounting bolts (A).
   d. Rotate potentiometer (B) clockwise to increase the low voltage limit and counterclockwise to decrease it.
   e. Tighten sensor mounting bolts (A).

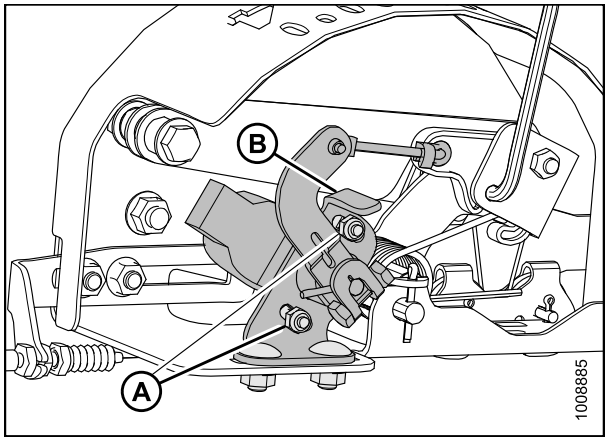


Figure 8.6: 10 Volt Auto Header Height Sensor Assembly for Use with Some New Holland Combines

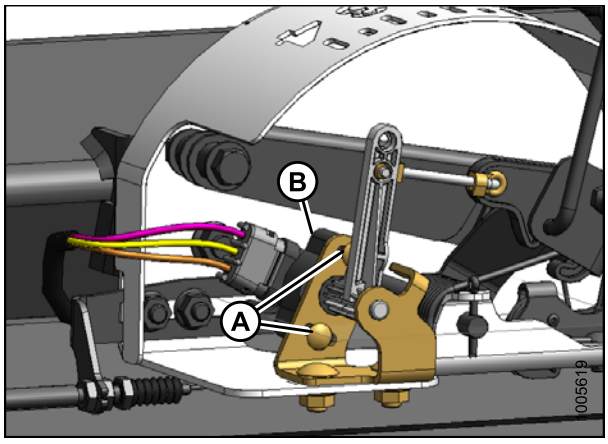


Figure 8.7: Most Common 5 Volt Auto Header Height Sensor Assembly

8.1.2 AGCO 6 and 7 Series Combines

Checking Voltage Range from the Combine Cab (AGCO 6 and 7 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor's output voltage range from the combine cab, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

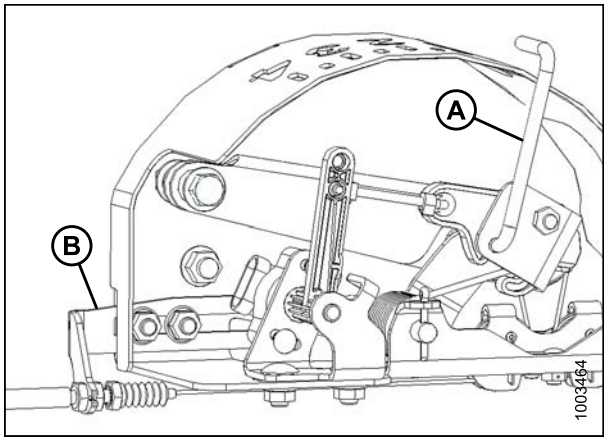


Figure 8.8: Float Indicator Box

3. On the combine monitor, go to the FIELD page, and then press the diagnostics icon. The MISCELLANEOUS page displays.
4. Press the VMM DIAGNOSTIC button (A). The VMM DIAGNOSTIC page displays.

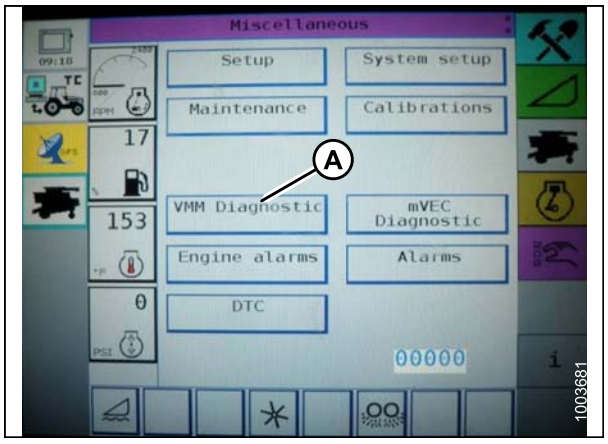


Figure 8.9: Combine Display

5. Go to the ANALOG IN tab, and then select VMM MODULE 3 by pressing the text box below the four tabs. The voltage from the Auto Header Height sensor is now displayed in the header height right pot and header height left pot. Both readings should be identical.

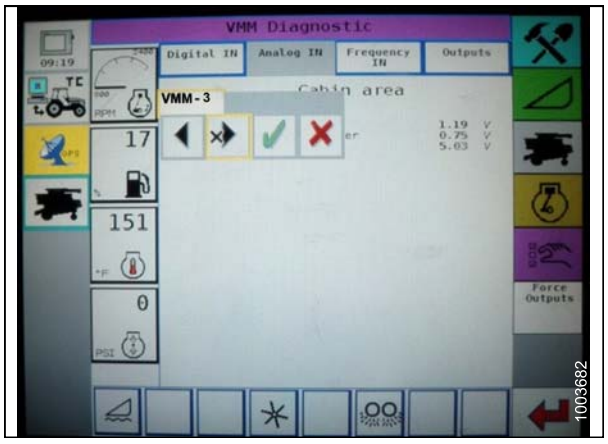


Figure 8.10: Combine Display

6. Fully lower the combine feeder house and float the header up off the down stops (float indicator should be on 4 and the adapter should be fully separated from the header).

NOTE:

You may need to hold the header down switch for a few seconds to ensure the feeder house is entirely down.

7. Read voltage.
8. Raise header so cutterbar is 6 in. (150 mm) off the ground.
9. Read voltage.
10. If the sensor voltage is not within the low and high limits refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to *Adjusting Voltage Limits, page 132* for instructions.

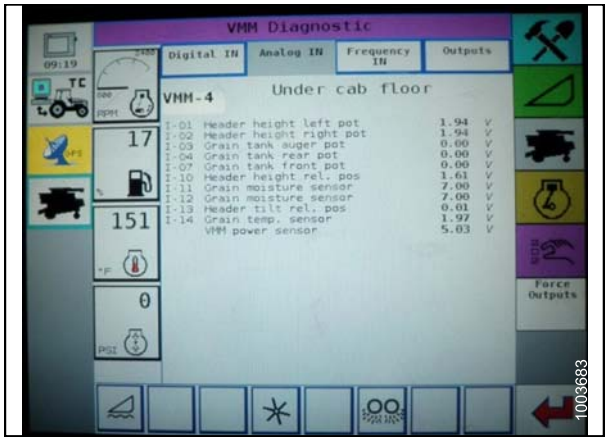


Figure 8.11: Combine Display

Engaging the Auto Header Height System (AGCO 6 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

The following system components are required in order for the Auto Header Height system to work:

- Main module (PCB board) and header driver module (PCB board) mounted in card box in Fuse Panel Module (FP).
- Multi Function Control Handle operator inputs.
- Operator inputs mounted in the control console module (CC) panel.

NOTE:

In addition to the above components, the electro hydraulic header lift control valve must also be considered an integral part of the system.

To select the AHHC mode, scroll through the header control options using the header control switch until the AHHC icon is displayed in the first message box.

When activated, the AHHC will adjust the header height in relation to the ground according to the height setting and sensitivity setting.

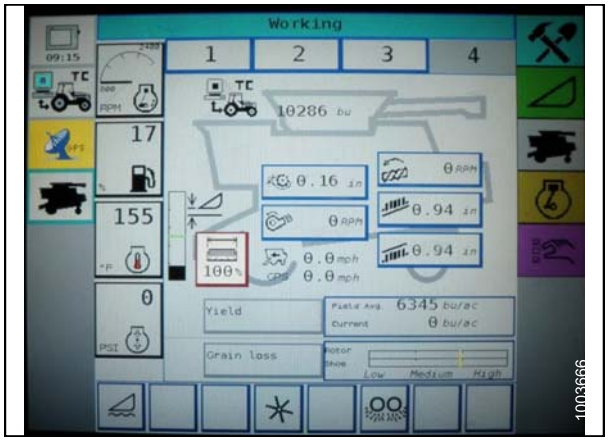


Figure 8.12: Combine Display

Calibrating the Auto Header Height System (AGCO 6 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

For best performance of the Auto Header Height system, perform these procedures with the center-link adjusted as long as possible. When setup and calibration is complete, adjust the center-link back to desired header angle. Refer to "Header Angle" in Operation section of the header operator's manual.

To calibrate the system, follow these steps:

1. On the FIELD page, press the DIAGNOSTICS icon. The MISCELLANEOUS page appears.

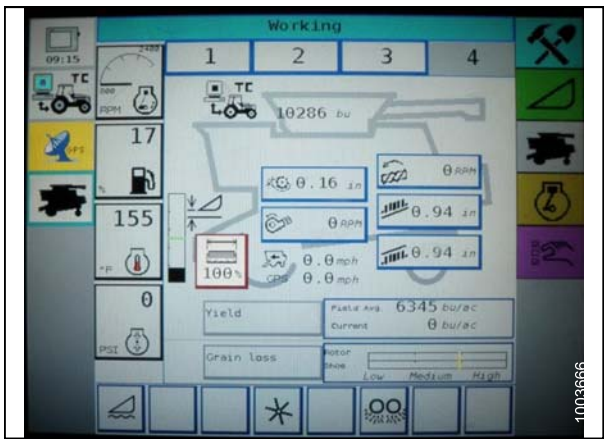


Figure 8.13: Combine Display

2. Press the CALIBRATIONS button. The CALIBRATIONS page appears.

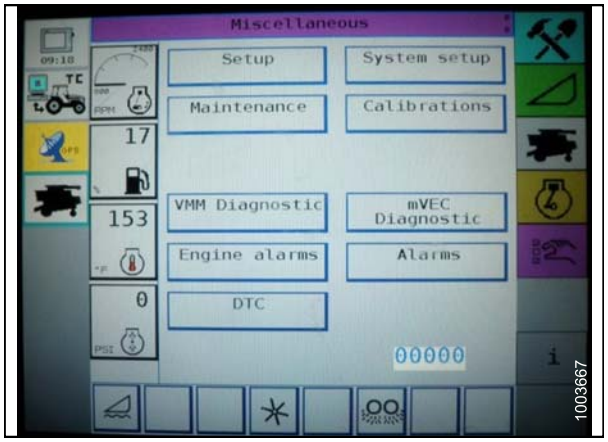


Figure 8.14: Combine Display

3. Press the HEADER button. The HEADER CALIBRATION page displays a warning.

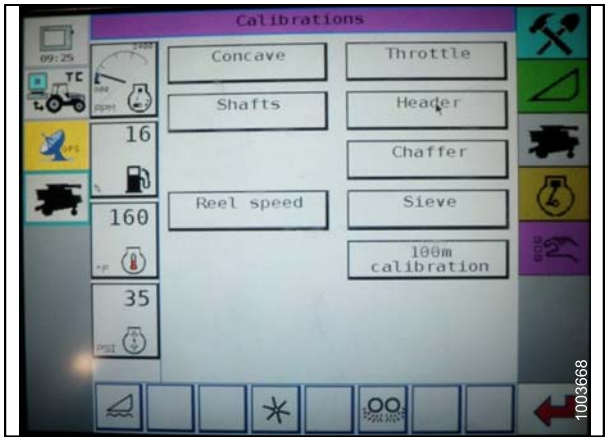


Figure 8.15: Combine Display

4. Read the warning message, and then press the green check mark button.

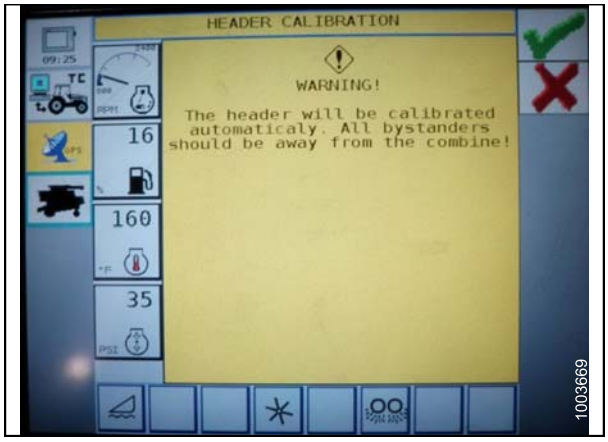


Figure 8.16: Combine Display

5. Follow the on-page prompts to complete calibration.

NOTE:

The calibration procedure can be cancelled at anytime by pressing the cancel button in the bottom, right corner of the page. While the header calibration is running, the calibration can also be canceled by using the up, down, tilt right, or tilt left buttons on the control handle.

NOTE:

If the combine does not have header tilt installed or if it is inoperable, you may receive warnings during calibration. Press the green check mark if these warnings appear. This will not affect the AHHC calibration.

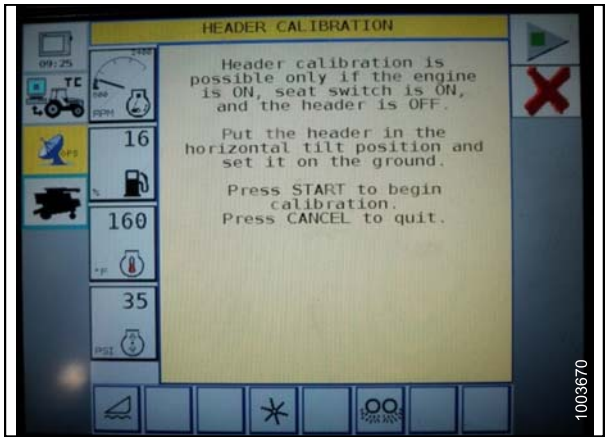


Figure 8.17: Combine Display

Adjusting the Header Height (AGCO 6 Series)

Once the AHHC is activated, press and release the lower button on the control handle. The AHHC will automatically lower the header to the selected height setting.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To selected AHHC height is adjusted using the height adjustment knob on the control console. Turning the knob clockwise increases the selected height and counterclockwise decreases the selected height.

Figure 8.18: Height Adjustment Knob on the Combine Control Console

Adjusting the Header Raise/Lower Rate (AGCO 6 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To adjust the header raise/lower rate, follow these steps:

1. On the FIELD page, press the Header icon. The HEADER page displays.

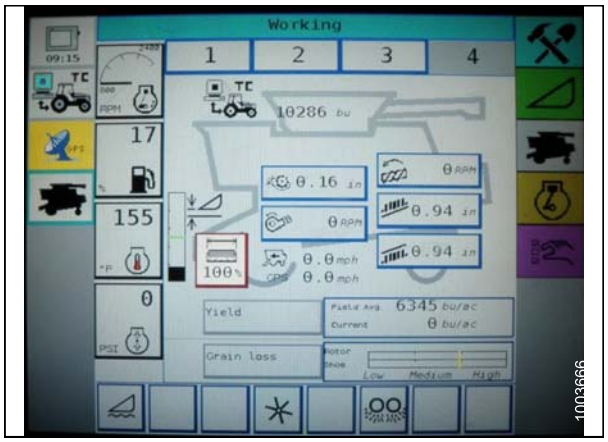


Figure 8.19: Combine Display

2. Press HEADER CONTROL(A). The HEADER CONTROL page displays.

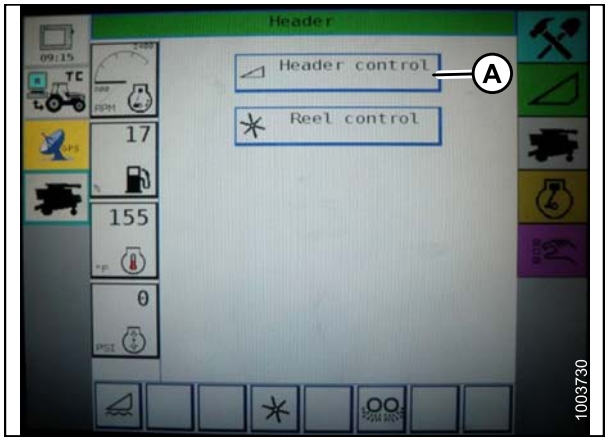


Figure 8.20: Combine Display

3. Go to the TABLE SETTINGS tab.
4. To increase raise speed, make percentage number bigger by pressing up arrow on Max UP PWM. To decrease raise speed, make percentage number lower by pressing down arrow on Max UP PWM.
5. To increase lower speed, make percentage number bigger by pressing up arrow on Max DOWN PWM. To decrease lower speed, make percentage number lower by pressing down arrow on Max DOWN PWM.

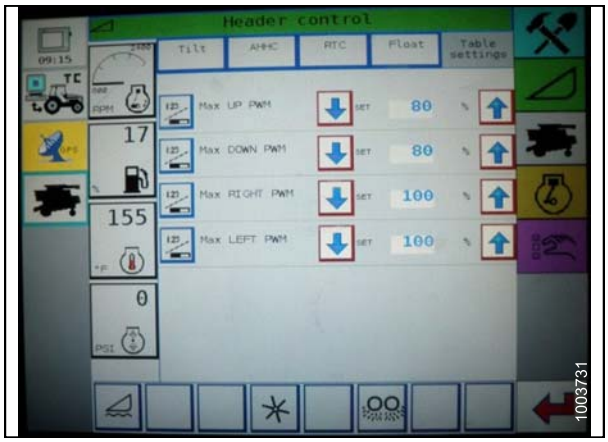


Figure 8.21: Combine Display

Adjusting the Sensitivity of the Auto Header Height (AGCO 6 Series)

The sensitivity adjustment, controls the distance the cutterbar must travel up or down before the AHHC reacts and raises or lowers the feeder house. When the sensitivity is at the maximum, small changes in the ground height is needed to cause the feeder house to raise or lower. When the sensitivity is at the minimum, large changes in the ground height is needed to cause the feeder house to raise or lower.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To adjust the sensitivity of the Auto Header Height system, follow these steps:

1. On the field page, press the HEADER icon. The HEADER page appears.

2. Press the HEADER CONTROL button (A). The HEADER CONTROL page appears. You can adjust sensitivity on this page using the up and down arrows.

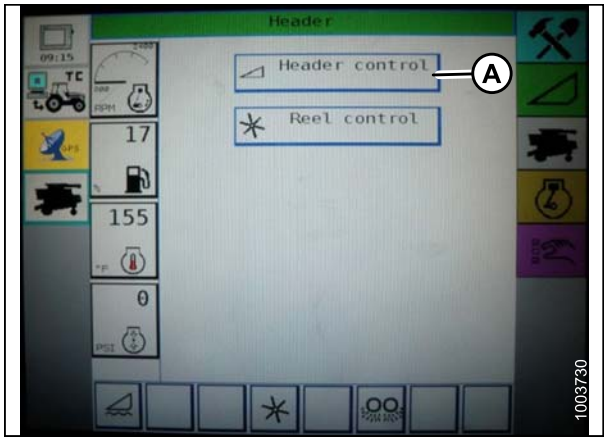


Figure 8.22: Combine Display

3. Adjust the sensitivity to the maximum setting.
4. Activate the AHHC, and press the header lower button on the control handle.

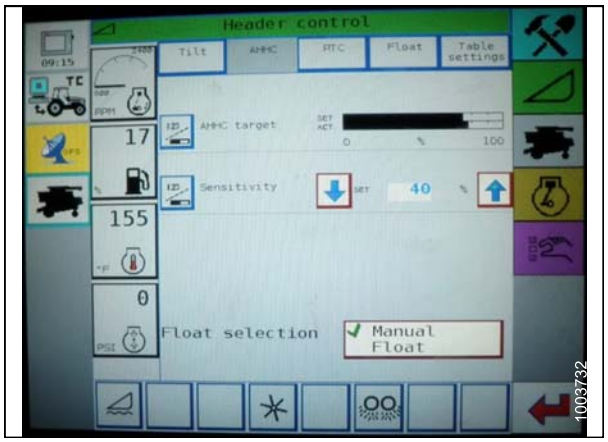


Figure 8.23: Combine Display

5. Decrease the sensitivity until the feeder house remains steady and does not bounce up and down. This is the maximum sensitivity and is only an initial setting. The final setting must be made in the field as the system reaction will vary with changes in surface and operating conditions.
6. If a maximum sensitivity is not needed, a less sensitive setting will reduce the frequency of header height corrections and component wear. Partially opening the accumulator valve will cushion the action of the header lift cylinders and reduce header hunting.

8.1.3 Case IH 2300/2500 Combines

Engaging the Auto Header Height System (Case IH 2300)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To engage the Auto Header Height system, follow these steps:

1. In combine, turn mode select switch (A) to HT.
2. Turn feeder ON.
3. Push header LOWER switch.

In Automatic Header Height Control, the system raises and lowers the header to maintain a fixed distance from the ground. The POSITION CONTROL (B) sets the height to maintain the header from the ground.

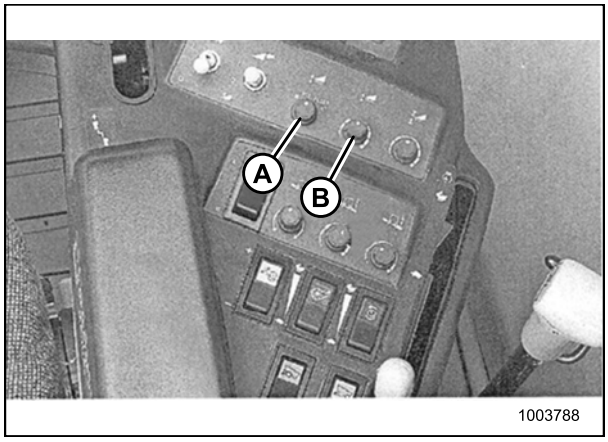


Figure 8.24: Combine Controls

The rate at which the header raises or lowers to maintain the ground height is controlled by the HEADER RAISE RATE (A) and HEADER LOWER RATE (B) control settings.

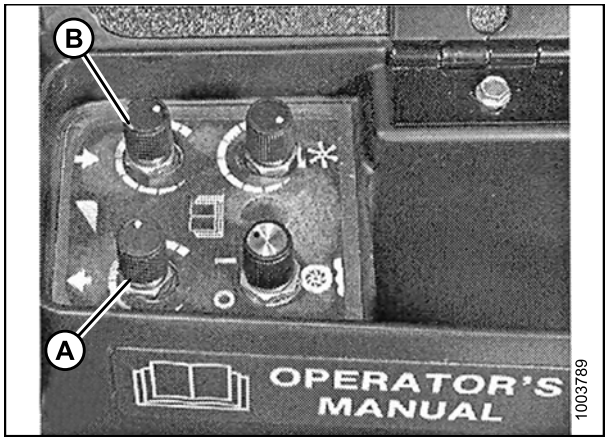


Figure 8.25: Combine Controls

In this mode the SENSITIVITY CONTROL (A) sets how sensitive the header control is to changing ground conditions.

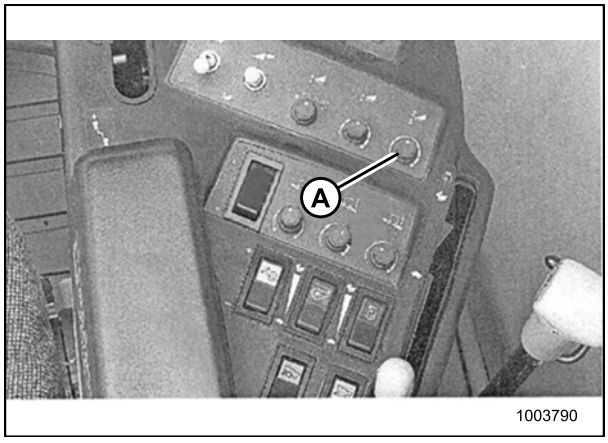


Figure 8.26: Combine Controls

Calibrating the Auto Header Height System (Case IH 2300/2500)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To calibrate the Auto Header Height system, follow these steps:

1. Set the flotation on the header and adapter package (refer to operator's manual for instructions). Position fore-aft and center-link in mid span.
2. Combine engine should be running. There is no need to have separator or feeder house engaged.
3. On right-hand console, set header control switch (A) to "HT" (this is Auto Header Height mode).

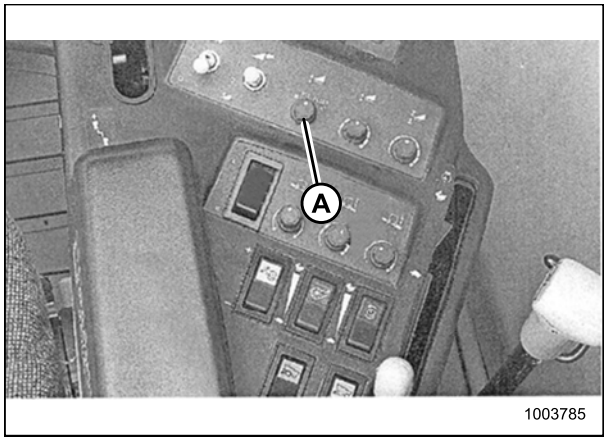


Figure 8.27: Right-Hand Console

4. On the propulsion lever, hold the lower switch (A) down until the adapter and header are lowered. Hold the switch down for five seconds.
5. Engage header raise switch (A) and hold the header raise switch up. The header should stop at about the halfway point. Keep holding the header raise switch, and the header will automatically rise until the feeder reaches the top of its limitations. The Auto Header Height system is now calibrated.

NOTE:

If float was set heavier to complete ground calibration procedure, adjust to recommended operating float after the calibration is complete.

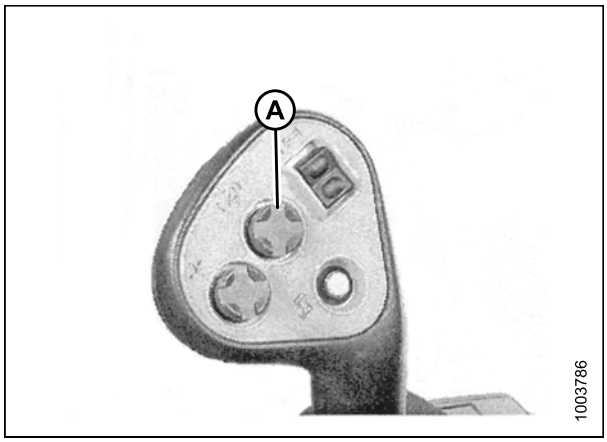


Figure 8.28: Propulsion Lever

8.1.4 Case IH 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines

Checking Voltage Range from the Combine Cab (Case 8010)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab for Universal Display, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

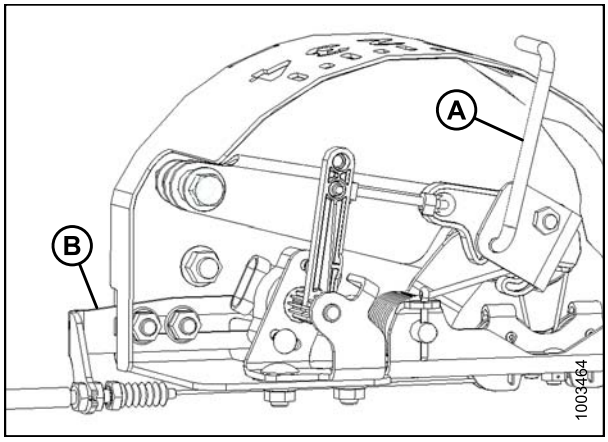


Figure 8.29: Float Indicator Box

3. Ensure header float is unlocked.
4. On the Universal display, MAIN screen, select DIAG (A). The DIAG screen displays.

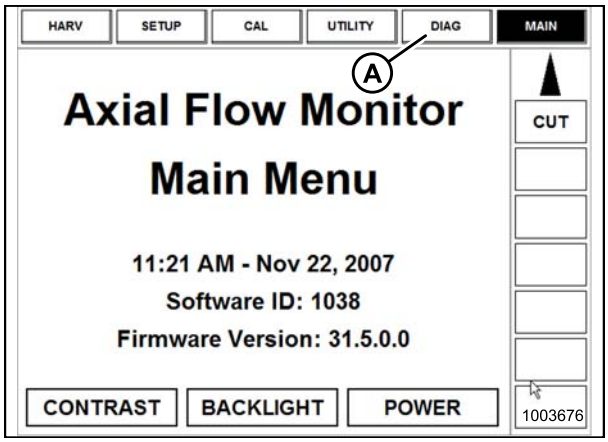


Figure 8.30: Combine Display

5. Select SUB SYSTEM (A). The SUB SYSTEM window opens.

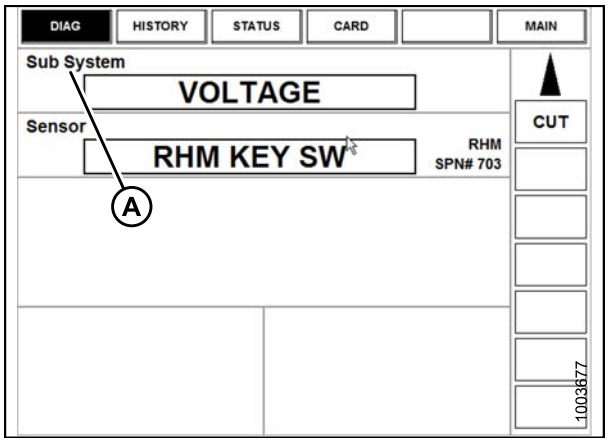


Figure 8.31: Combine Display

6. Select HDR HEIGHT/TILT (A). The SENSOR window opens.

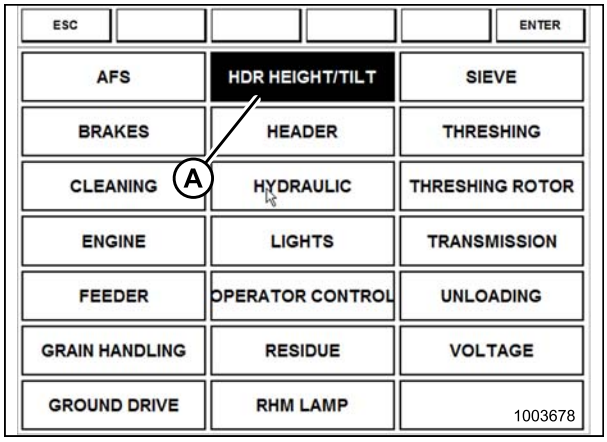


Figure 8.32: Combine Display

7. Select LEFT SEN (A). The exact voltage is displayed. Raise and lower the header to see the full range of voltage readings.

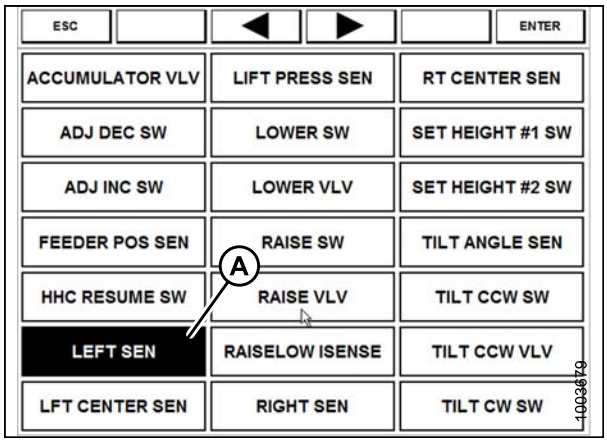


Figure 8.33: Combine Display

8. If the sensor voltage is not within the low and high limits shown in *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to *Adjusting Voltage Limits, page 132*.

Figure 8.34: Combine Display

Checking Voltage Range from the Combine Cab (Case IH 7/8010; 7/8/9120; 7/8/9230)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab for Pro 600 Display, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

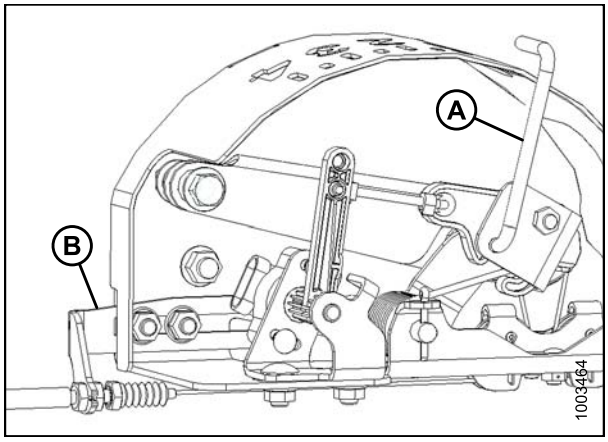


Figure 8.35: Float Indicator Box

3. Ensure header float is unlocked.
4. On the MAIN screen, select DIAGNOSTICS (A). The DIAGNOSTICS screen displays.
5. Select SETTINGS. The SETTINGS screen displays.

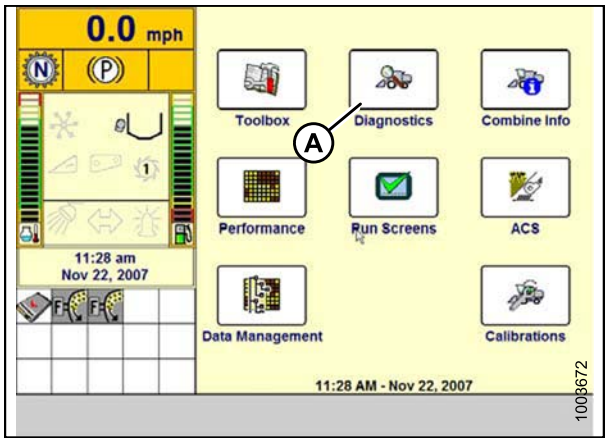


Figure 8.36: Combine Display

6. Select the GROUP arrow (A). The GROUP window opens.

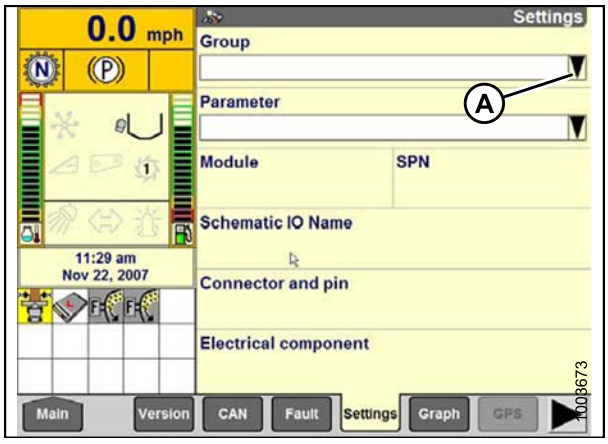


Figure 8.37: Combine Display

7. Select HEADER HEIGHT/TILT (A). The PARAMETER window opens.

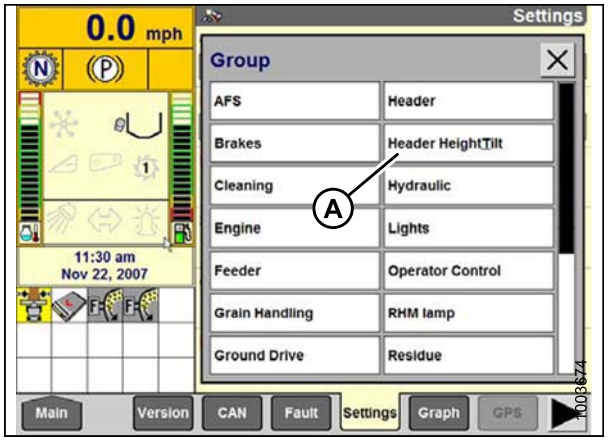


Figure 8.38: Combine Display

8. Select Left header height sen (A), and then select the Graph button at the bottom of the screen. The exact voltage is displayed at top of screen. Raise and lower the header to see the full range of voltage readings.
9. If the sensor voltage is not within the low and high limits, refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to *Adjusting Voltage Limits, page 132*.

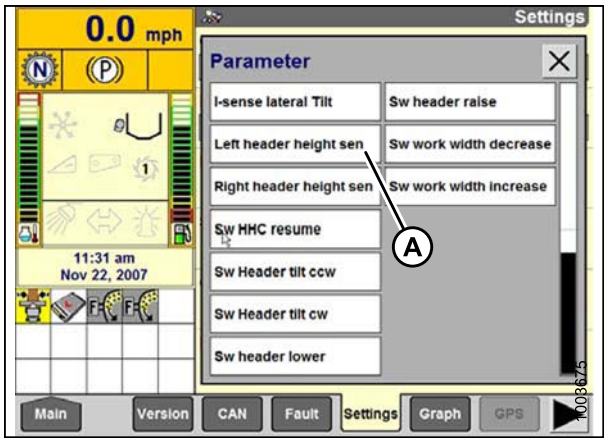


Figure 8.39: Combine Display

10. Push the GRAPH tab beside the SETTINGS tab to view the voltage.

Figure 8.40: Combine Display

Calibrating the Auto Header Height System (Case 7/8010; 7/8/9120; 7/8/9230)

For best performance of the Auto Header Height system, perform these procedures with the center-link adjusted as long as possible. When setup and calibration is complete, adjust the center-link back to desired header angle. Refer to “Header Angle” in Operation section of the header operator’s manual.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator’s manual for updates.

To calibrate the system, follow these steps:

1. Ensure all header and adapter electrical, and hydraulic connections are made.
2. On MAIN screen, select TOOLBOX, then select HEADER.
3. Set appropriate HEADER STYLE.

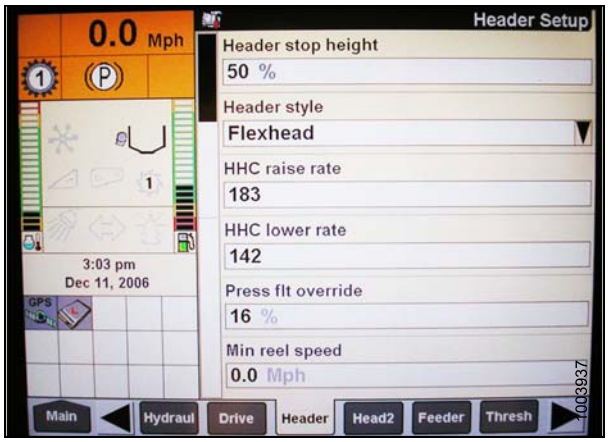


Figure 8.41: Combine Display

4. Set Auto reel speed slope.
5. Set HEADER PRESSURE FLOAT to YES if equipped, and ensure REEL DRIVE is HYDRAULIC.

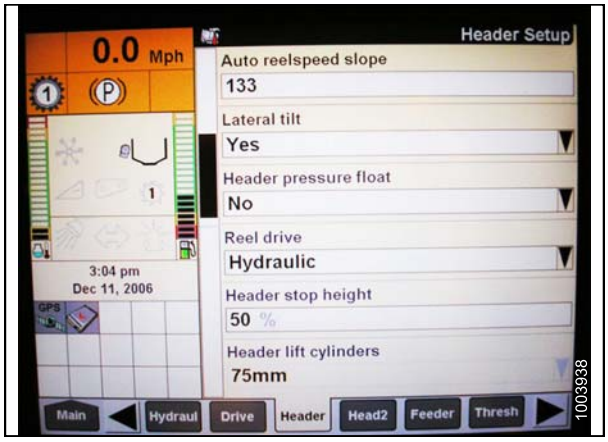


Figure 8.42: Combine Display

6. If applicable, install REEL FORE-BACK.
7. Set HEIGHT SENSITIVITY to desired value. 180 is recommended as a starting point.

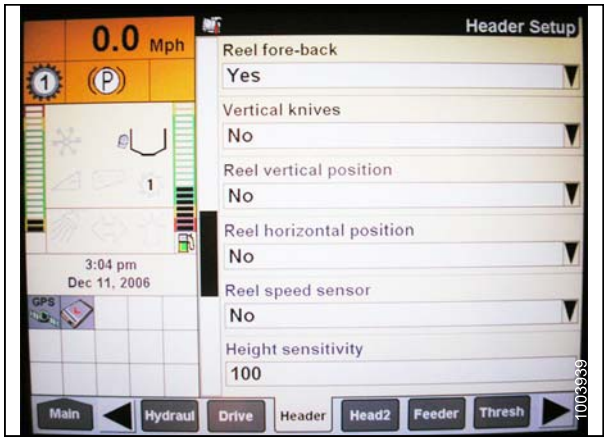


Figure 8.43: Combine Display

8. Install FORE-AFT CONTROL, and HDR FORE-AFT TILT if applicable.

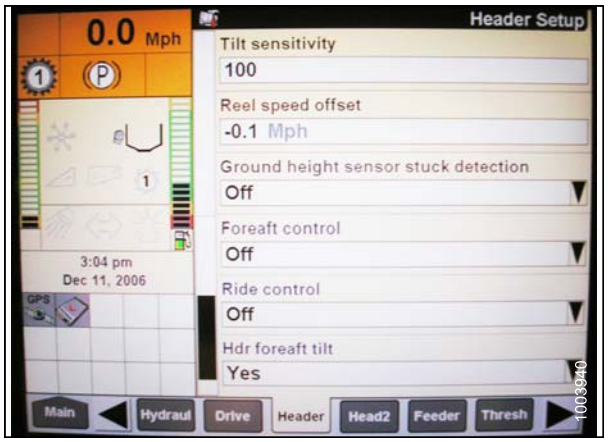


Figure 8.44: Combine Display

9. Once complete press HEAD2 at bottom of screen.
10. Ensure HEADER TYPE is DRAPER.

NOTE:

If recognition resistor is plugged in to header harness, you will not be able to change this.

11. Cutting type should be set to PLATFORM.
12. Set appropriate HEADER WIDTH and HEADER USAGE.

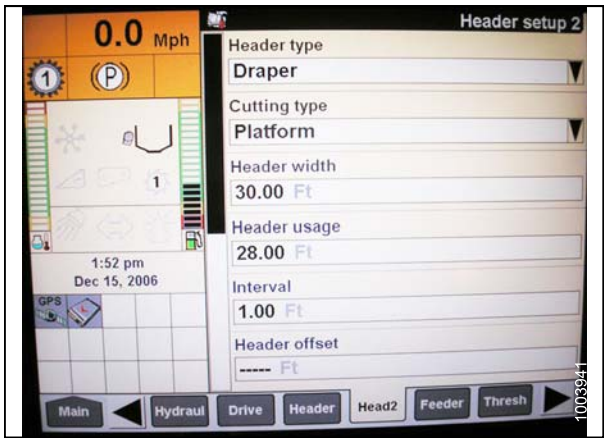


Figure 8.45: Combine Display

8.1.5 Gleaner R62/R72 Combines

System Requirements (Gleaner R62/R75)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

The following system components are required in order for the Auto Header Height system to work:

- Main module (PCB board) and header driver module (PCB board) mounted in card box in Fuse Panel Module (FP)
- Multi Function Control Handle operator inputs
- Operator inputs mounted in the control console module (CC) panel

NOTE:

In addition to the above components, the electro hydraulic header lift control valve must also be considered an integral part of the system.

Calibrating the Auto Header Height System (Gleaner R62/R72)

For best performance of the Auto Header Height system, perform these procedures with the center-link adjusted as long as possible. When setup and calibration is complete, adjust the center-link back to desired header angle. Refer to "Header Angle" in Operation section of the header operator's manual.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To calibrate the auto header height system, follow these steps:

1. Ensure the center-link is as short as possible, and that the adapter float is unlocked.
2. Turn on the combine, and then press and hold the hidden C1 button (A) until the LED light (B) flashes momentarily.
3. Lower the feeder house as far as it will go.
4. Press and hold the hidden L2 button (C) until the LED light (B) flashes momentarily. The auto header height system is now calibrated.

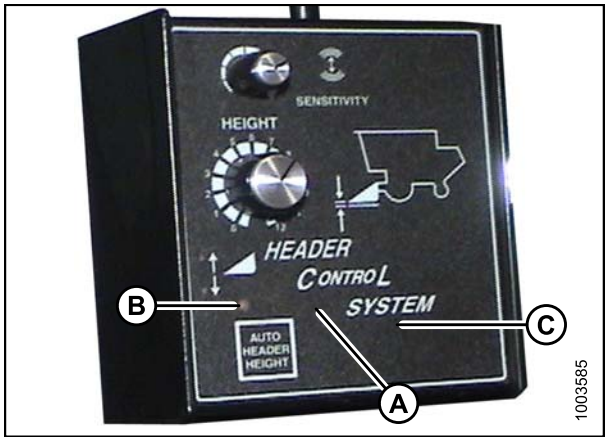


Figure 8.46: Combine Header Control System

Operation Settings (Gleaner R62/R72 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

Set Auto Header Height operation settings for the AGCO R62 and R72 combines as follows:

1. Engage the Main Threshing Clutch (A) and Header Clutch (B).

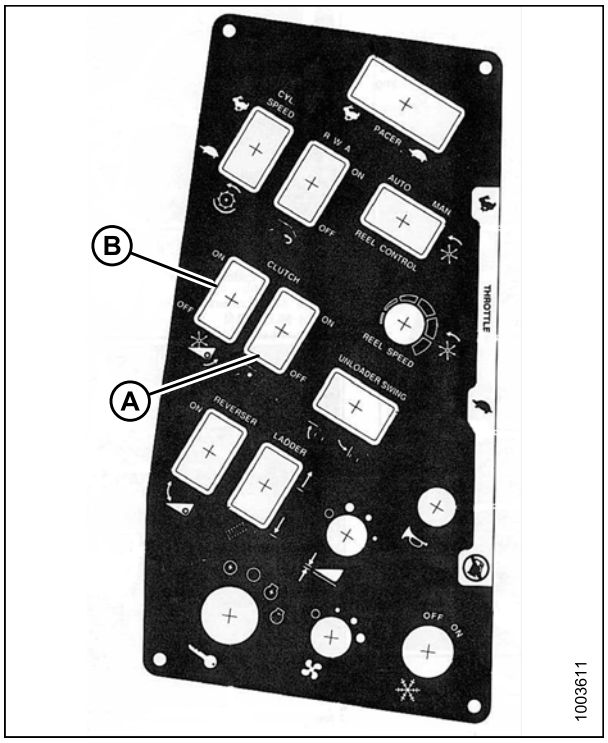


Figure 8.47: Combine Control Console

2. Speed the throttle (A) to over 2000 rpm.

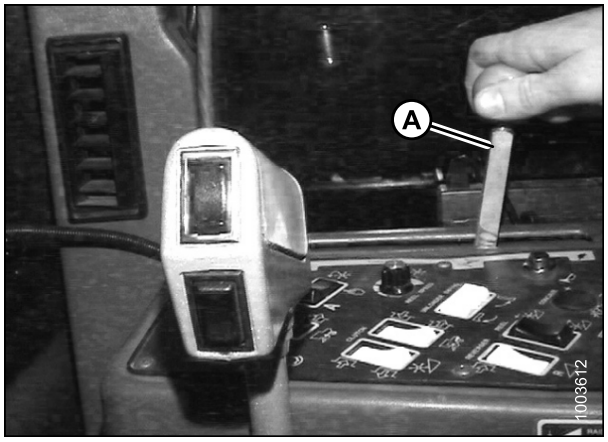


Figure 8.48: Throttle

3. Push the Auto Header Height button (A). The LED light (B) should flash continuously, indicating it is in standby mode and waiting for a response from the operator.

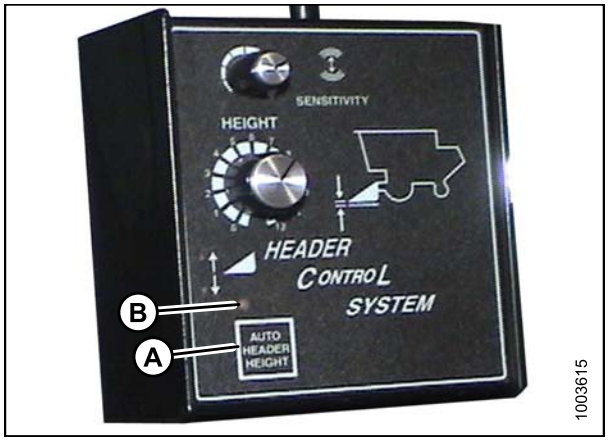


Figure 8.49: Combine Header Control System

4. Momentarily push the header down button (A). The header should lower automatically and the LED light should stay illuminated, indicating the auto height system is engaged and working.

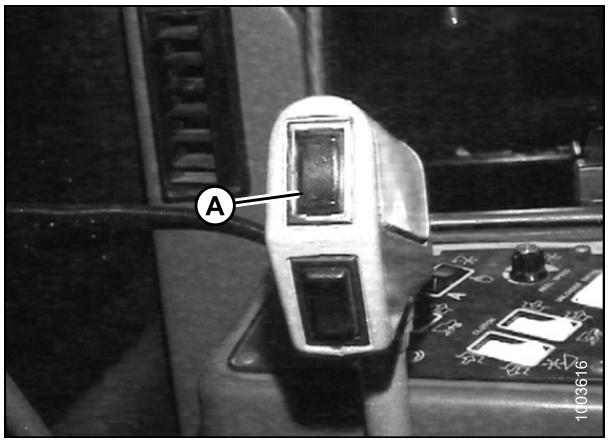


Figure 8.50: Header Down Button

5. To control the ground pressure turn the Height dial (A) to increase or decrease ground pressure.
6. To control the sensitivity or how quickly the auto header height reacts to varying ground conditions, turn the Sensitivity dial (B).

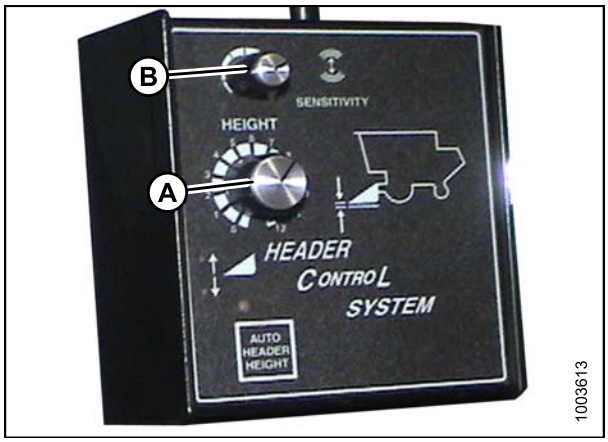


Figure 8.51: Combine Header Control System

8.1.6 Gleaner R65/R75 Combines

Checking Voltage Range from the Combine Cab (Gleaner R65/R75)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensors output voltage range from the combine cab, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

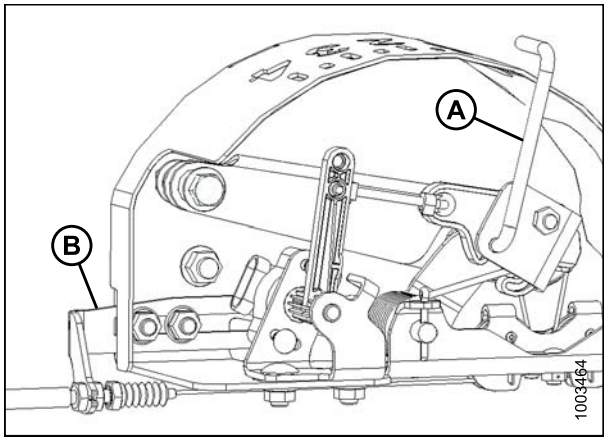


Figure 8.52: Float Indicator Box

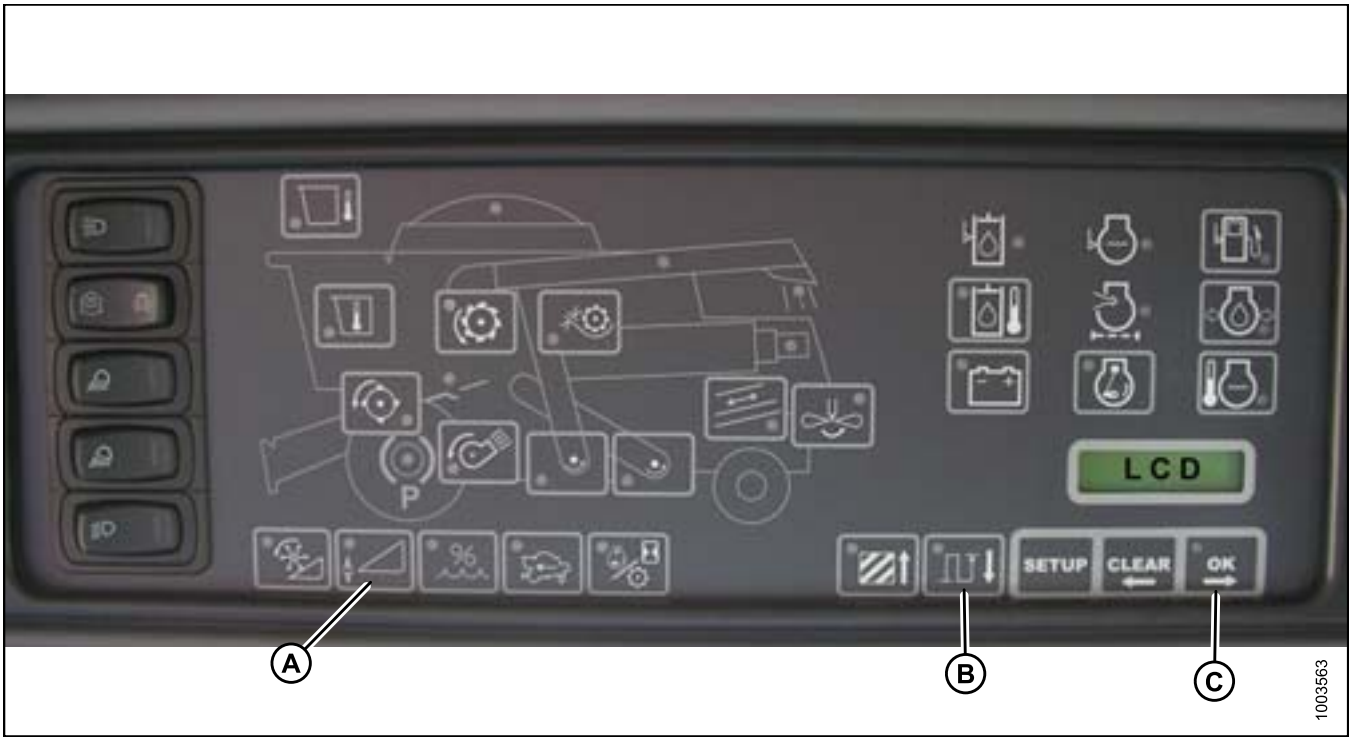


Figure 8.53: Combine Heads Up Display

3. Ensure header float is unlocked.
4. Press and hold button (A) on the heads up display for three seconds to enter diagnostic mode.
5. Scroll down using button (B) until "LEFT" is displayed on the LCD screen.

6. Press the OK button (C). The number indicated on the LCD screen is the voltage reading from the sensor of the Auto Header Height. Raise and lower the header to see the full range of voltage readings.
7. If the sensor voltage is not within the low and high limits shown in *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to *Adjusting Voltage Limits, page 132* for instructions.

Engaging the Auto Header Height System (Gleaner R65/R75)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

The following system components are required in order for the Auto Header Height system to work:

- Main module (PCB board) and header driver module (PCB board) mounted in card box in Fuse Panel Module (FP).
- Multi Function Control Handle operator inputs.
- Operator inputs mounted in the control console module (CC) panel.

NOTE:

In addition to the above components, the electro hydraulic header lift control valve must also be considered an integral part of the system.

To engage the Auto Header Height system, follow these steps:

Figure 8.54: Combine Auto Header Height Controls

1. Press the AUTO MODE (A) button until the AHHC LED light (B) is flashing. If the RTC light is flashing, press the AUTO MODE (A) button again until it switches to AHHC.

2. Momentarily press the down button (A) on the control handle. The AHHC light should change from flashing to solid. The header should also drop toward the ground. The Auto Header Height control is now working and active and can be adjusted for height and sensitivity.

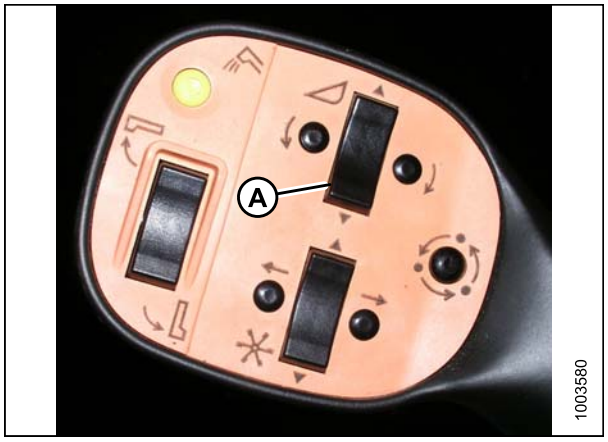


Figure 8.55: Control Handle

Calibrating the Auto Header Height System (Gleaner R65/R75)

Calibration should be done on flat, level ground without the header clutches engaged. Header height and header tilt must not be in auto or standby modes. The engine rpm must also be above 2000 rpm. The Header Tilt option on 2004, and prior combines does not work with MacDon headers. This system will have to be removed, and disabled in order to calibrate the Auto Header Height. Refer to combine manual for instructions.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

Figure 8.56: Combine Auto Header Height Controls

A - AUTO MODE Button
B - AHHC Light
C - CAL1 Button
D - Raise Header
E - Lower Header
F - Auto Mode

To calibrate the header, follow these steps:

1. Press AUTO MODE button (A) until the AHHC light (B) is illuminated.
2. Press and hold CAL1 button (C) until you see the following lights flash: raise header (D), and lower header (E), tilt auto mode (F), and AHHC (B).
3. Lower header all the way down, and continue to hold for 5–8 seconds to ensure adapter has separated from header.
4. Press CAL2 button (G) until lower header light (E) stops flashing, and release it when the raise header light (D) starts to flash.
5. Raise header to its maximum height (ensure the header is resting on the down-stop pads).
6. Press CAL2 button (G) until the raise header light (D) turns off.

NOTE:

The following steps are only applicable to 2005, and newer combines with the Smartrac feeder house.

7. Wait for the header tilt left light to start flashing, and then tilt header to the maximum left position.
8. Press CAL2 button (G) until the tilt header left light stops flashing (not present in picture), and release button when the right header tilt light (not present in picture) starts to flash.
9. Tilt the header to the maximum right position.
10. Press CAL2 button (G) until all of the following lights flash: Raise header (D), lower header (E), height auto mode (A), right header, left header (not present), and tilt auto mode (F).
11. Center the header.
12. Press CAL1 button (C) to exit calibration, and save all values to the memory. All lights should stop flashing.

Turning the Accumulator Off (Gleaner R65/R75)

The accumulator will affect the combine's reaction time and greatly inhibit the Auto Header Height performance.

Refer to the combine operator's manual for proper procedure when turning accumulator off and on. For best performance, turn the feeder house accumulator off.

NOTE:

The accumulator is located in front of the front left axle beam.

Figure 8.57: Combine Accumulator On/Off Switch

A - Accumulator Lever (Off Position)

Adjusting the Header Raise/Lower Rate (Gleaner R65/R75)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

Header height control system stability is affected by hydraulic flow rates. Ensure that the header raise (A) and lower (B) adjustable restrictors in the hydraulic valve are adjusted so it takes approximately six seconds to raise the header from ground level to maximum height (hydraulic cylinders fully extended) and approximately six seconds to lower the header from maximum height to ground level.

NOTE:

Make this adjustment with the hydraulic system at normal operating temperature (130°F [54.4°C]) and the engine running at full throttle.

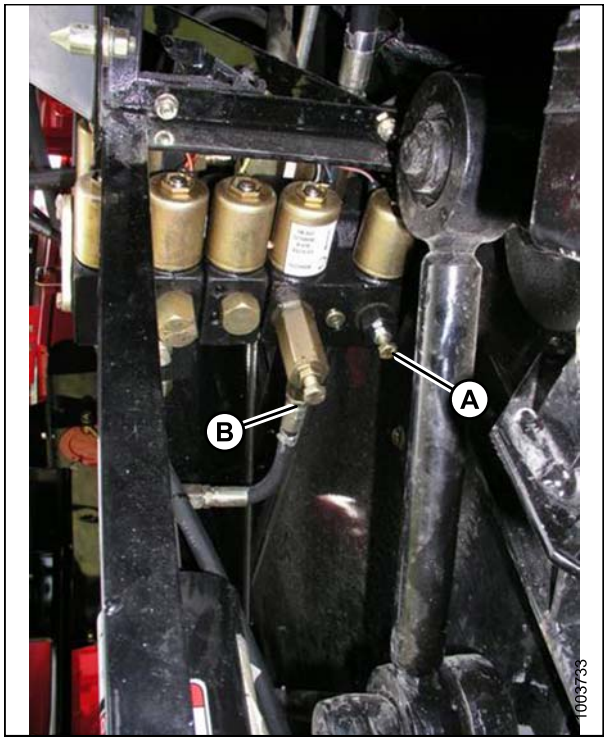


Figure 8.58: Header Raise and Lower Adjustable Restrictors

Adjusting Ground Pressure (Gleaner R65/R75)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To adjust height of header, be sure the header is in Auto Header Height Control (AHHC) mode. This is indicated by the LED (A) being solid. The header will lower to the height (ground pressure) corresponding to the position selected with the height control knob (B).

Turn the knob counterclockwise for minimum ground pressure and clockwise for maximum ground pressure.

Figure 8.59: Auto Header Height Control Console

NOTE:

Desired ground pressure is in most cases one number separation of the Auto Header Height from having the header fully suspended off the ground (A) to just sitting on the ground (B).

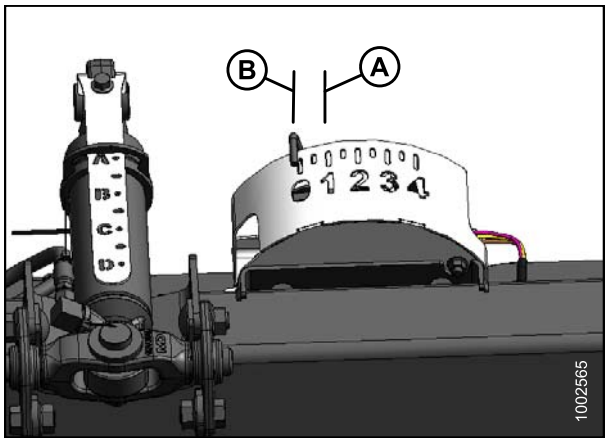


Figure 8.60: Float Indicator Box

Adjusting the Sensitivity of the Auto Header Height (Gleaner R65/R75)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

Figure 8.61: Auto Header Height Control Console

The sensitivity adjustment dial (A) is used to control the distance the cutterbar travels (moves up or down) in relation to the header frame (flex head) or header in relation to ground (rigid or corn head) before the control module activates the hydraulic valve to raise or lower the header frame.

When the sensitivity adjustment dial (A) is turned completely clockwise, the control module is set to the “MOST” sensitive position. In this position, the cutterbar typically only moves up and down a distance of approximately 3/4 in. (19 mm) before the control module activates the hydraulic control valve to raise or lower the header frame.

When the sensitivity adjustment dial is turned completely counterclockwise, the control module is set to the “LEAST” sensitive position. In this position, the flex head cutterbar can move up and down approximately 2 in. (51 mm) before the control module activates the hydraulic control valve to raise or lower the header frame. The “HEADER SENSE LINE” input changes the range of the sensitivity sensor as well. Connected to a draper, the counterclockwise position (least sensitive) allows for approximately 4 in. of vertical travel before correction is initiated.

Diagnostics (Gleaner R65/R75)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator’s manual for updates.

Display type:

Displayed on tachometer (A) as “XX” or “XXX”.

Figure 8.62: Tachometer

Displayed on LCD (A) as “XX in” or “XXX cm”.

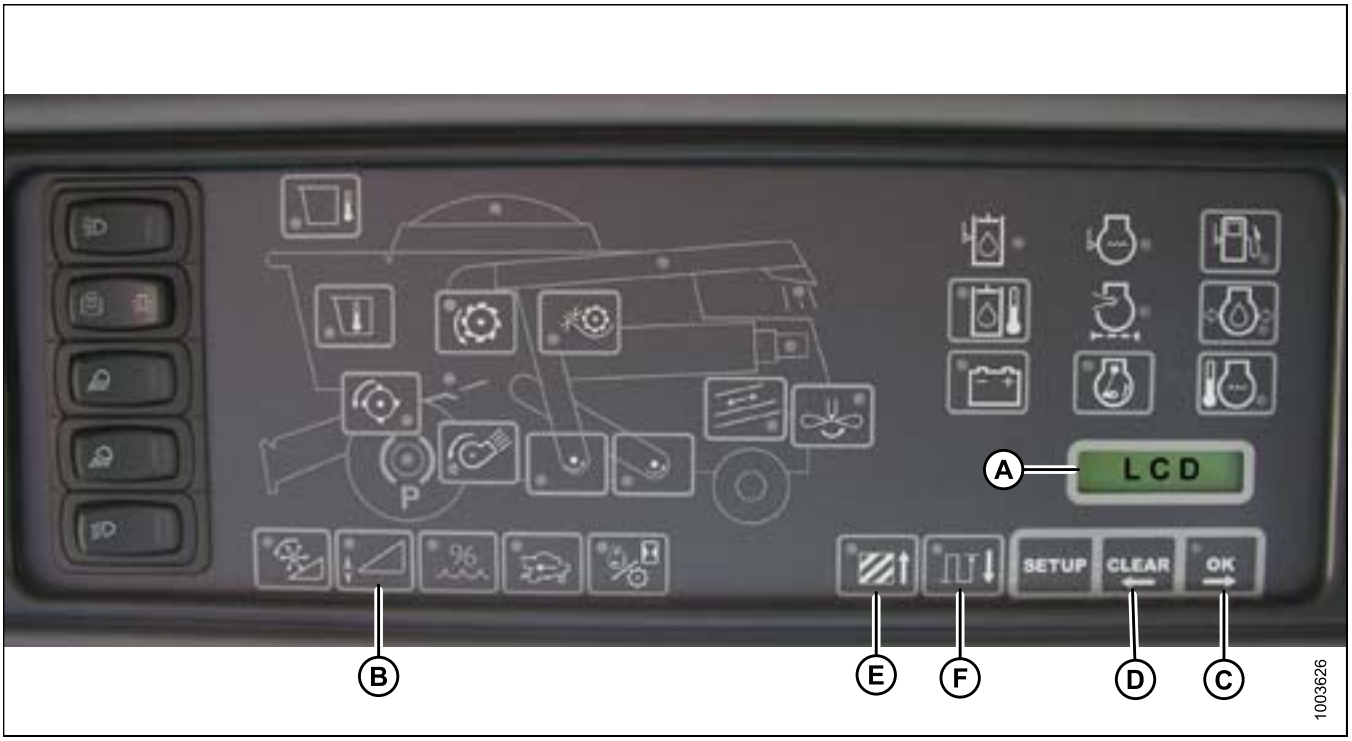


Figure 8.63: Combine LCD Display

Alarm conditions:

If an error is indicated in message received from the fuse panel, an audible alarm is set. The LCD on the EIP indicates the header system in error as HDR CTRL followed by HGT ERR for height, and HDR CTRL followed by TILT ERR from tilt. The header height LED flashes yellow two times every second.

The alarm is also noted by the buzzer sounding five times every 10 seconds.

NOTE:

If the header height switch (B) is pressed for 5 seconds or longer, the EIP goes into auto header height/tile (HTC) control diagnostic mode.

When an alarm condition occurs, switch green LED flashes on and off (green, yellow, or red depending on the input).

In addition, a message is displayed on the LCD to identify the nature of the alarm. For example, HYD TEMP, OPEN, SHRT will be flashed alternately.

Diagnostic fault failures:

Pressing the header height switch (B) for a minimum of five seconds will put Electronic Instrument Panel (EIP) in header diagnostic mode.

The LCD (shown on previous page) will display the message HDR DIAG when the EIP has entered header diagnostic mode.

In this mode, after three seconds, header fault parameter labels are displayed on the EIP LCD.

NOTE:

all the information displayed is read only.

The OK (C) and CLEAR (D) buttons allow the operator to scroll through the list of parameters.

NOTE:

If there are no active fault codes, the EIP LCD will display NO CODE.

When a parameter is displayed, its label is displayed for three seconds, after which its value is automatically displayed.

Pressing OK button (C) at this point when the value is displayed will advance to the next parameter and display its label.

When a parameter label is displayed, and the OK button (C) is pressed before three seconds, the parameters value will be displayed.

Pressing AREA (E) will cycle through the options.

NOTE:

When LEFT is displayed in LCD, press the OK button (C), and the Auto Header Height voltage will be shown in display.

Press the DIST button (F) to cycle back through the table.

Press the CLEAR button (D) to exit header diagnostics and return to normal mode.

Refer to *8.1.14 Sensor Operation, page 208*.

8.1.7 John Deere 50 Series Combines

Checking Voltage Range from the Combine Cab (John Deere 50 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

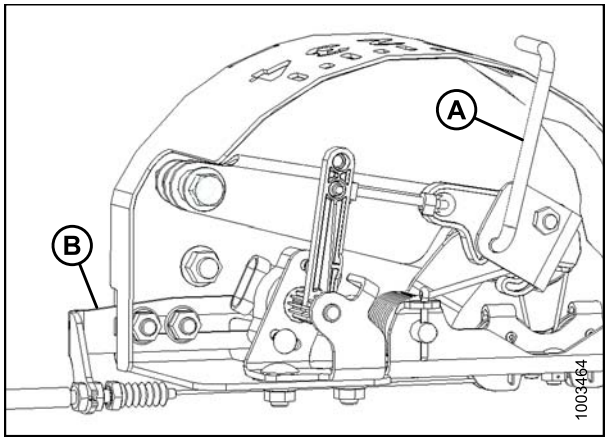


Figure 8.64: Float Indicator Box

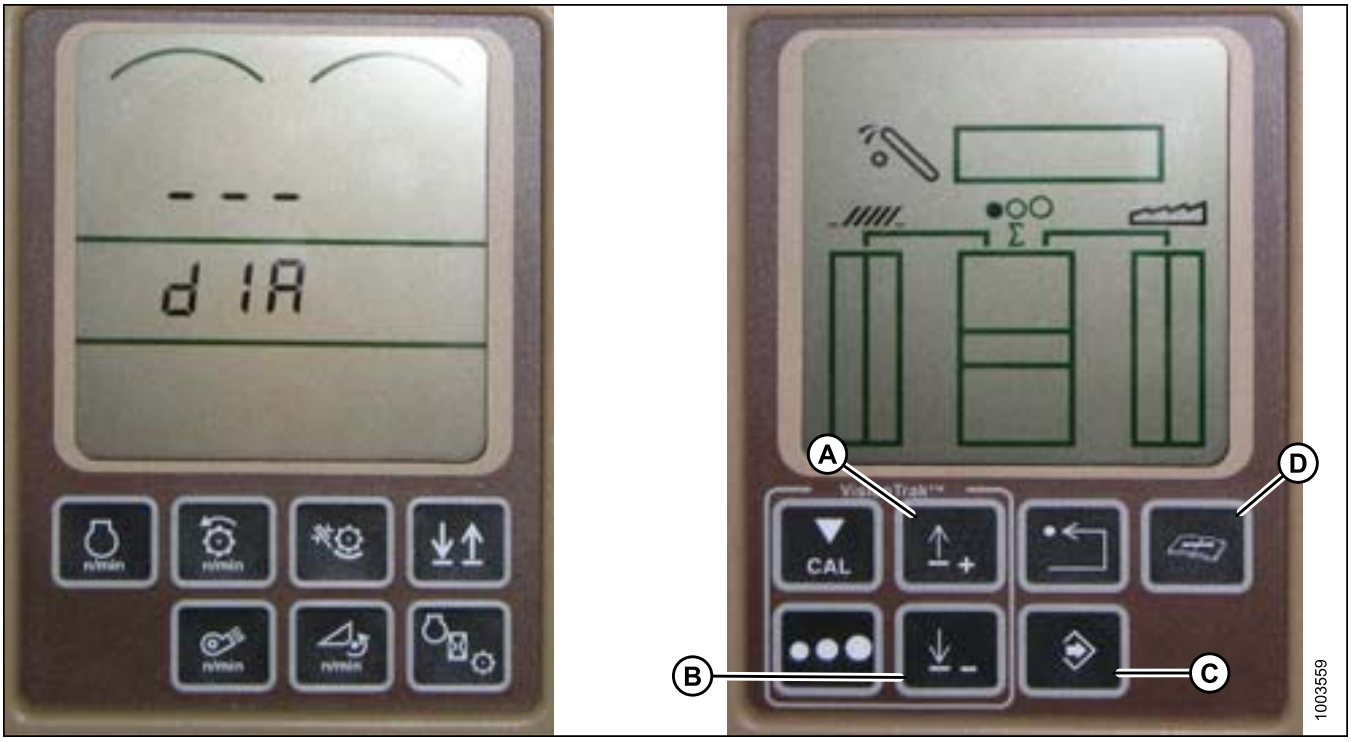


Figure 8.65: Combine HHS Monitor

3. Press the DIAGNOSTIC button on the (HHS) monitor – the button with the open book with the wrench on top of it (D) dIA appears on the monitor.
4. Press the UP button (A) until EO1 appears on the monitor (these are all your header adjustments).

5. Press the ENTER button (C).
6. Press the UP (A) or DOWN button (B) until 24 is displayed on the top portion of the monitor. This is the voltage reading of the sensor.
7. Ensure header float is unlocked.
8. Start the combine, lower feeder house to the ground until the feeder house stops moving.

NOTE:

You may need to hold the header down switch for a few seconds to ensure the feeder house is entirely down.

9. Check the sensor reading on the monitor.
10. Raise the header so it is just off the ground, check the sensor reading again.
11. If the sensor voltage is not within the low and high limits, refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to *Adjusting Voltage Limits, page 132* for instructions.

Calibrating the Auto Header Height System (John Deere 50 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Rest header on down stops, and unlock adapter float.
2. Put wings in locked position.
3. Start the combine.
4. Press the diagnostic button on the monitor (this is the button with the open book with the wrench on top of it (A) dIA appears on the monitor.
5. Press the CAL button (B) DIA - CAL appears on the monitor.

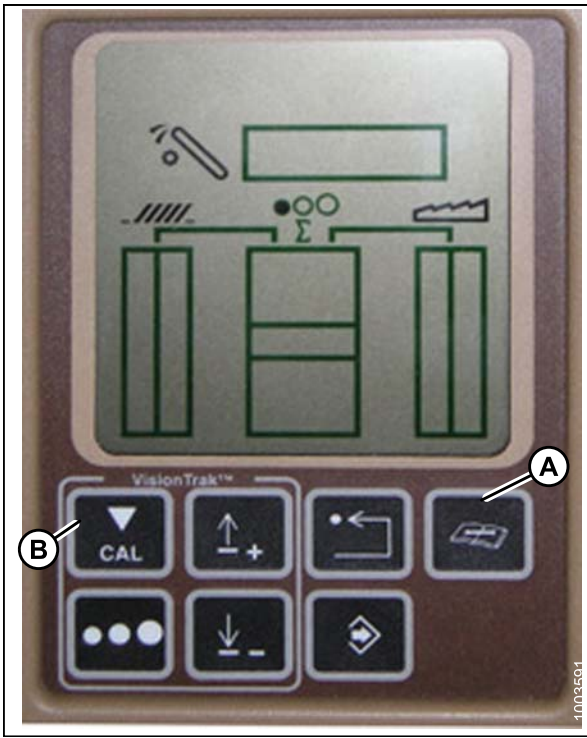


Figure 8.66: Combine Display

6. Press the UP or DOWN buttons until hdr appears on the monitor.
7. Press the enter button, hdr H-dn appears on the monitor.

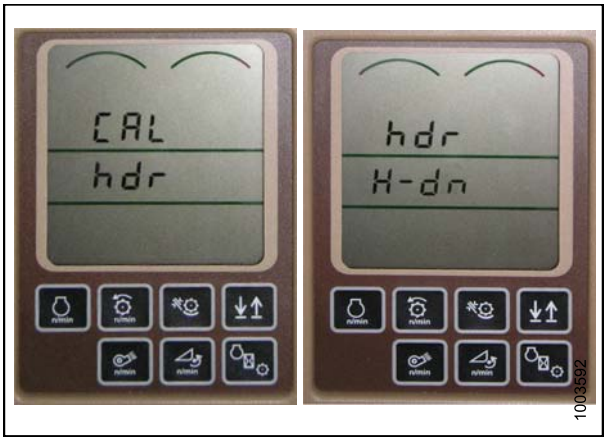


Figure 8.67: Combine Display

8. Lower the feeder house all the way (after the header hits the ground you will have to continue to hold the header lower button for 5–8 seconds in order to accomplish this).
9. Once the feeder house is all the way down, press the CAL button (A). This will save the lower calibration in the computer, hdr H-UP appears on the monitor.
10. Raise the header 3 feet off the ground, and again press the CAL (A) button. EOC appears on the monitor. Press the enter button (B) to save the calibration of the header. Your Auto Header Height is now calibrated.

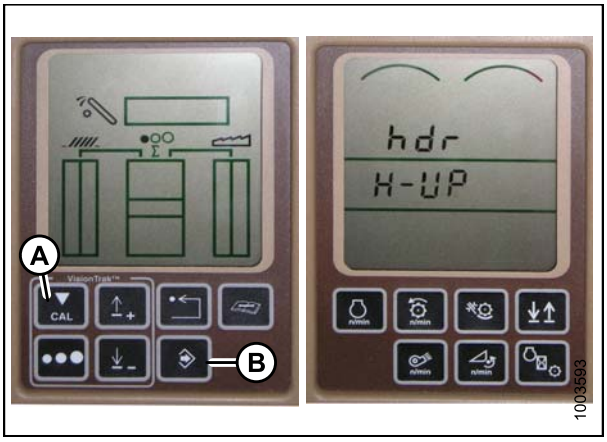


Figure 8.68: Combine Display

NOTE:

If the sensor voltage is not within the low and high limits, refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to *Adjusting Voltage Limits, page 132* for instructions.

After the calibration is complete, specific combine operation settings need to be made to ensure proper field operation.

8.1.8 John Deere 60 Series Combines

Checking Voltage Range from the Combine Cab (John Deere 60 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

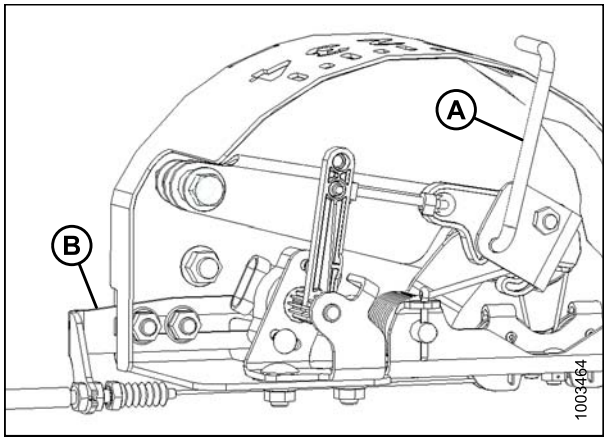


Figure 8.69: Float Indicator Box

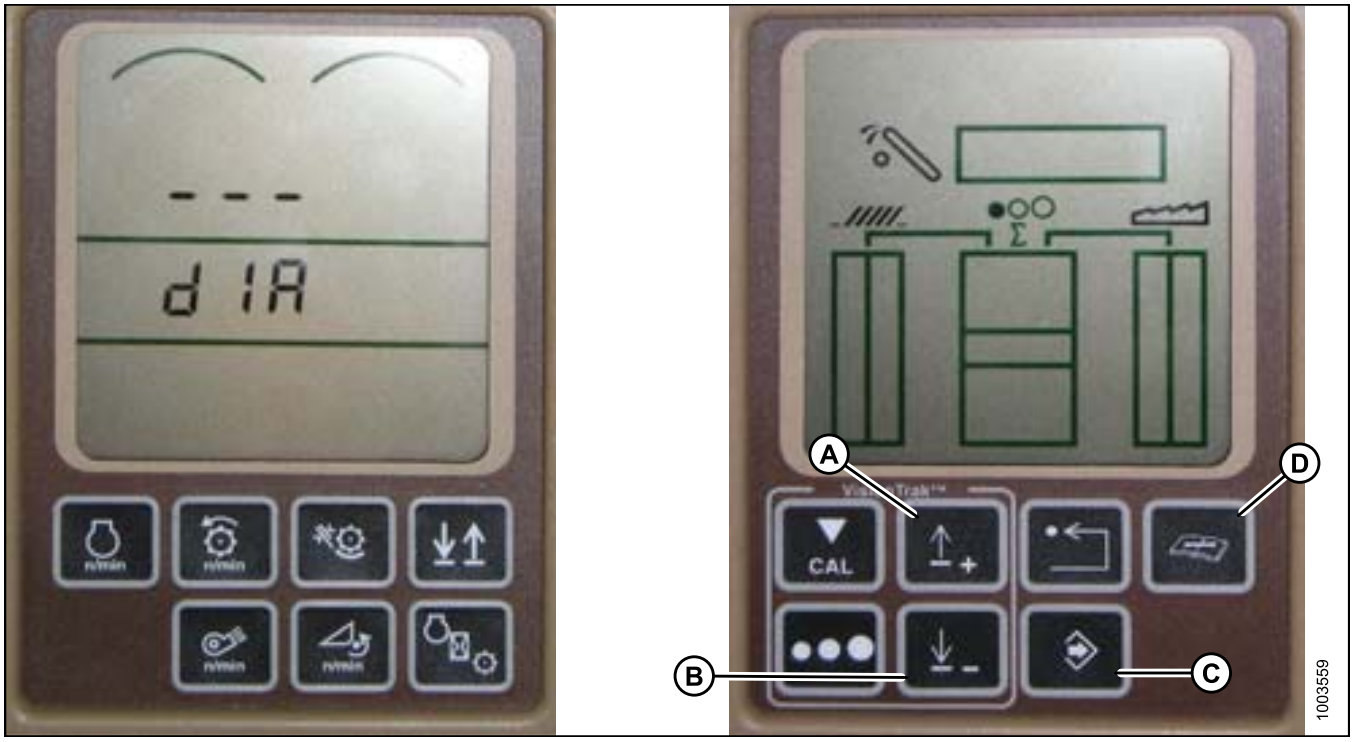


Figure 8.70: Combine HHS Monitor

3. Press the DIAGNOSTIC button on the (HHS) monitor – the button with the open book with the wrench on top of it (D) dIA appears on the monitor.
4. Press the UP button (A) until EO1 appears on the monitor (these are all your header adjustments).

5. Press the ENTER button (C).
6. Press the UP (A) or DOWN button (B) until 24 is displayed on the top portion of the monitor. This is the voltage reading of the sensor.
7. Ensure header float is unlocked.
8. Start the combine, lower feeder house to the ground until the feeder house stops moving.

NOTE:

You may need to hold the HEADER DOWN switch for a few seconds to ensure the feeder house is entirely down.

9. Check the sensor reading on the monitor.
10. Raise the header so it is just off the ground, check the sensor reading again.
11. If the sensor voltage is not within the low and high limits, refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to *Adjusting Voltage Limits, page 132* for instructions.

Calibrating the Auto Header Height System (John Deere 60 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Rest header on down stops, and unlock adaptor float.
2. Put wings in locked position.
3. Start the combine.
4. Press the DIAGNOSTIC button on the monitor (this is the button with the open book with the wrench on top of it (A) dIA appears on the monitor.
5. Press the CAL button (B) DIA - CAL appears on the monitor.

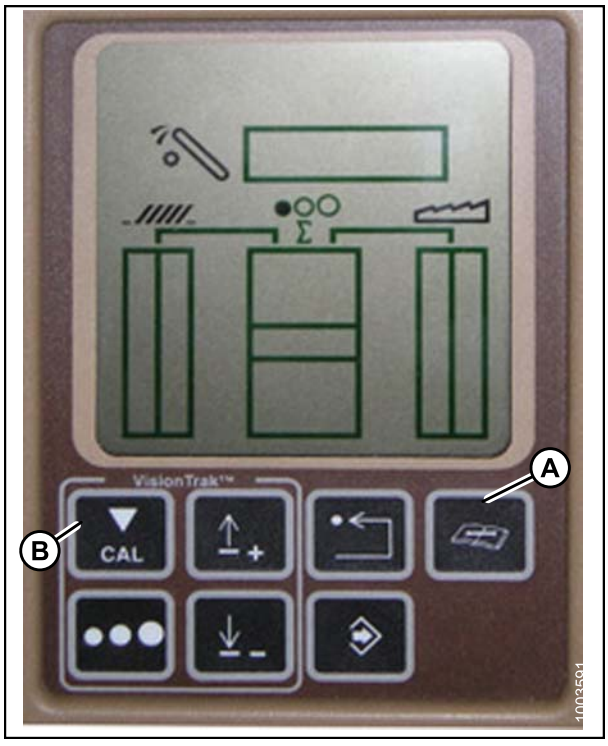


Figure 8.71: Combine Display

6. Press the UP or DOWN buttons until hdr appears on the monitor.
7. Press the ENTER button, hdr H-dn appears on the monitor.

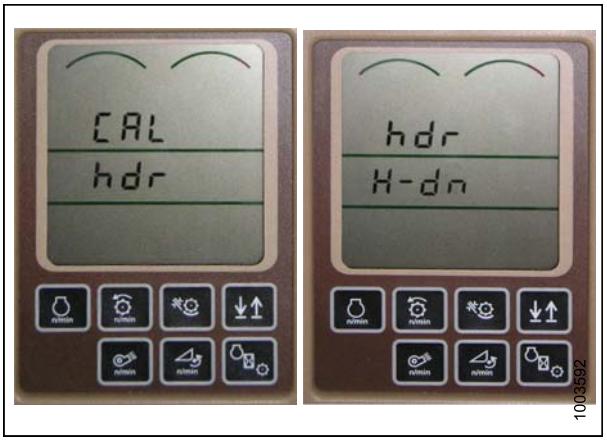


Figure 8.72: Combine Display

8. Lower the feeder house all the way (after the header hits the ground you will have to continue to hold the header lower button for 5–8 seconds in order to accomplish this).
9. Once the feeder house is all the way down, press the CAL button (A). This will save the lower calibration in the computer. hdr H-UP appears on the monitor.
10. Raise the header 3 feet off the ground, and again press the CAL (A) button. EOC appears on the monitor. Press the enter button (B) to save the calibration of the header. Your Auto Header Height is now calibrated.

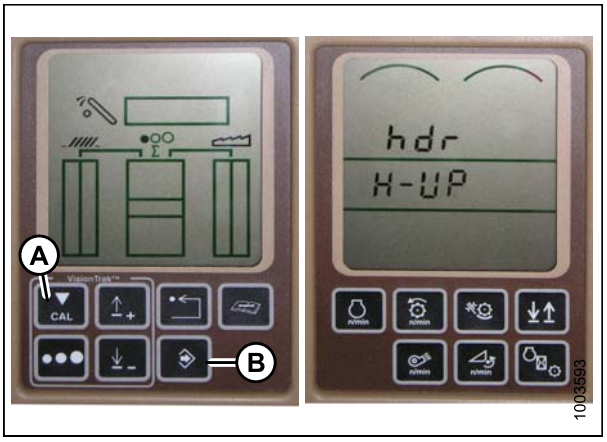


Figure 8.73: Combine Display

NOTE:

If an error code comes up on the screen the sensor is not in the correct working range. Refer to *Checking Voltage Range from the Combine Cab (John Deere 60 Series), page 164* to check and adjust the range.

After the calibration is complete, specific combine operation settings need to be made to ensure proper field operation.

Turning the Accumulator Off (John Deere 60 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To turn the accumulator off, follow these steps:

1. Press the DIAGNOSTIC button on the VisionTrak Display monitor (this is the button with the open book with the wrench on top of it (A) DIA appears on the monitor.
2. Press the UP button (B) until EO1 appears on the monitor (these are all your header adjustments). Then press ENTER (D).
3. Now press the UP (B) or DOWN button (C) until 132 is displayed on the top portion of the monitor. This is the reading of the accumulator.
4. Once you have 132 displayed at the top of the monitor, press ENTER (D). This will now allow you to change the display to a three-digit number so it has a “0” in it. For example, “x0x”.
5. Press the UP (B) or DOWN button (C) until the desired number is displayed, and then press the CAL (E) button.
6. The accumulator is now deactivated. Press ENTER (D) to save the changes.

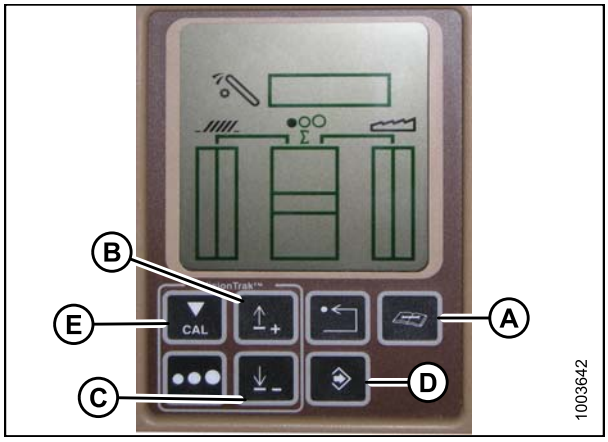


Figure 8.74: Combine Display

Setting the Sensing Grain Header Height to 50 (John Deere 60 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator’s manual for updates.

To set the sensing grain header height, follow these steps:

1. Press the DIAGNOSTIC button on the “Vision Trak Display” monitor (this is the button with the open book with the wrench on top of it (A) DIA appears on the monitor.
2. Press the UP button (B) until EO1 appears on the monitor (this is all your header adjustments), and then press ENTER (B).
3. Press the UP or DOWN button (A) until 128 is displayed on the top portion of the monitor. This is the reading of the sensor.
4. Press ENTER (D). Now you can change the display so it has a “50” in it.
5. Push the UP (B) or DOWN button (C) until the desired number is displayed, then press the CAL (E) button.
6. The height is now set. Press ENTER (D) to save the changes.

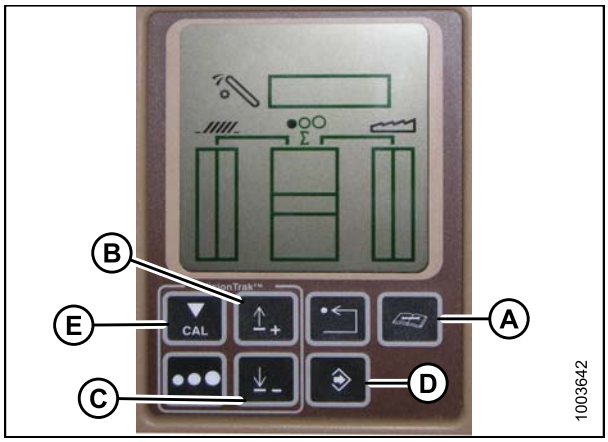


Figure 8.75: Combine Display

NOTE:

Do not use the active header float function (A) in combination with the MacDon Auto Header Height as the two systems will counteract one another. Header symbol on display should not have wavy line under it and should appear exactly as shown on the Active Header Control Display illustration.

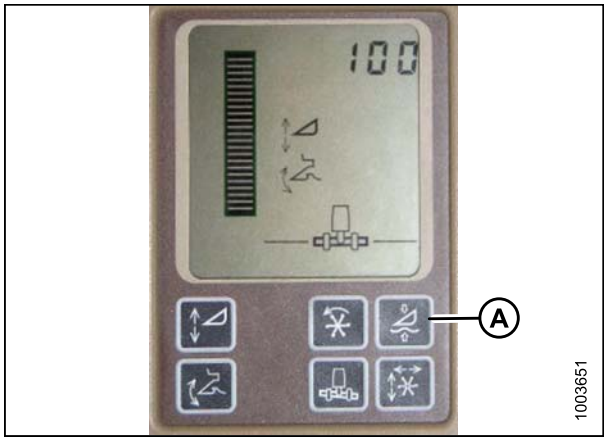


Figure 8.76: Combine Display

Increasing the Sensitivity of the Auto Header Height (John Deere 60 Series)

This is also known as dead band adjustment.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To increase the sensitivity of the Auto Header Height, follow these steps:

1. Press the DIAGNOSTIC button on the monitor—the button with the open book with the wrench on top of it (A) dIA appears on the monitor.
2. Press the UP button (B) until EO1 appears on the monitor (these are all your header adjustments), and then push the ENTER button (D).
3. Press the UP (B) or DOWN (C) button until 112 is displayed on the monitor. This is your sensitivity setting; the lower the reading, the higher the sensitivity. You should operate in the 50 to 80 range.
4. To adjust the sensitivity, once you have 112 displayed at the top of the monitor, press enter. You can now change the first digit of the number sequence.
5. Press the UP (B) or DOWN button (C) until the desired number is displayed, and then press the CAL button (E). This brings you to the second digit. Repeat this procedure until the desired setting is achieved. Press ENTER (D) to save changes.

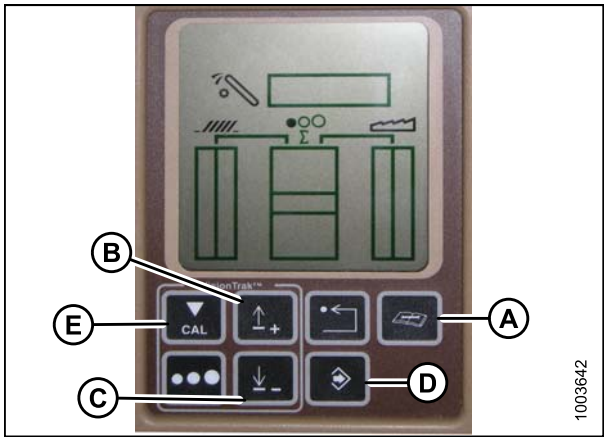


Figure 8.77: Combine Display

NOTE:

The numbers under this display are simply reference numbers; they do not represent any particular value.

Figure 8.78: Combine Display

Adjusting the Threshold for the Drop Rate Valve (John Deere 60 Series)

This adjusts the point at which the restrictor valve opens allowing full flow to the lift cylinders.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To increase the flow rate sooner, follow these steps:

1. Press the DIAGNOSTIC button on the monitor—the button with the open book with the wrench on top of it (A) dIA appears on the monitor.
2. Press the UP button (B) until EO1 appears on the monitor (these are all your header adjustments), and then push the ENTER button (C).
3. Press the UP or DOWN button until 114 is displayed on the monitor. This is the setting that adjusts when the fast drop rate starts with respect to the dead band. The default setting is 100. You should operate in the 60–85 range.
4. To adjust the threshold, once you have 114 displayed at the top of the monitor, press ENTER. You can now change the first digit of the number sequence.
5. Press the UP or DOWN button (B) until the desired number is displayed, and then press the CAL button (D). This will bring you to the second digit. Repeat this procedure until the desired setting is achieved. Press ENTER (C) to save changes.

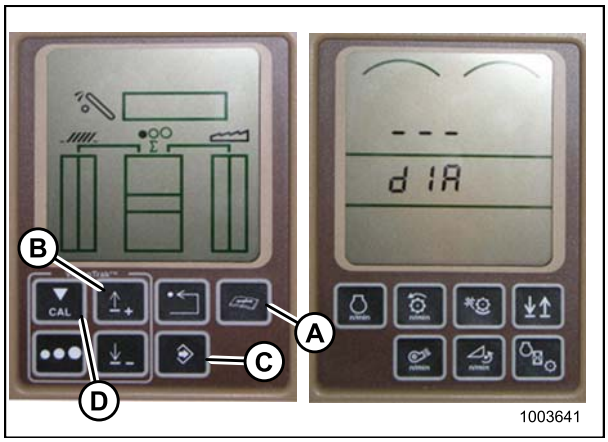


Figure 8.79: Combine Display

NOTE:

The numbers under this display are simply reference numbers; they do not represent any particular value.

8.1.9 John Deere 70 Series Combines

Checking Voltage Range from the Combine Cab (John Deere 70 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

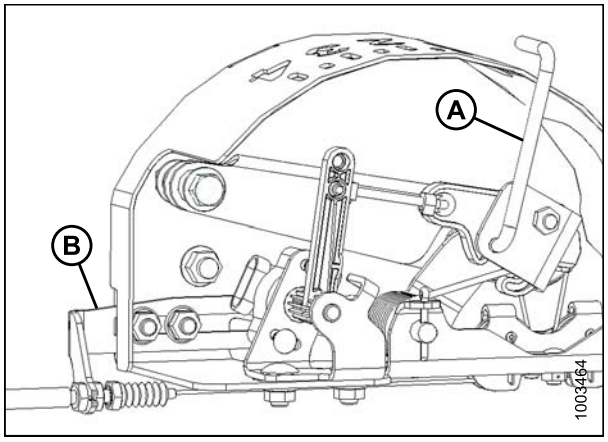


Figure 8.80: Float Indicator Box

3. From the main page of the Command Center, press the HOME PAGE button (A).

Figure 8.81: Combine Display

4. Three icons (A) will appear on the screen.

Figure 8.82: Combine Display

5. Scroll down using the scroll knob (A) until you reach the middle icon, the green i. Once the middle icon is selected, push the check mark button (B). This will bring up the Message Center.

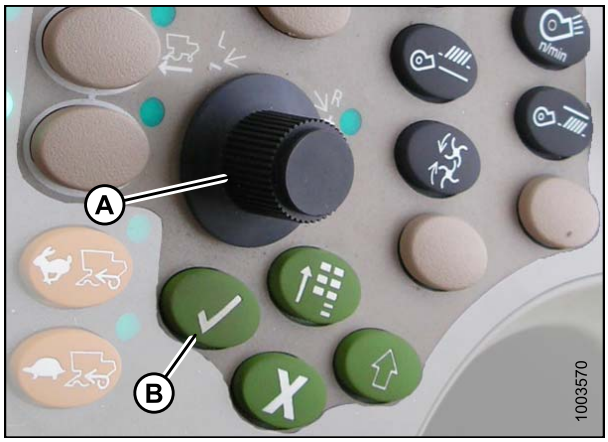


Figure 8.83: Combine Controls

6. Highlight the DIAGNOSTIC ADDRESSES from the right hand column, the second icon from the top (A), using the scroll knob. Press the check mark button to select.
7. Scroll over the drop down box (B) and press the check mark button.

Figure 8.84: Combine Display

8. Scroll down, using the scroll knob, until LC 1.001 Vehicle (A) is highlighted. Press the check mark button to select.

Figure 8.85: Combine Display

9. Scroll to the small bottom arrow (A) and press the check mark button to scroll down the list until 029 Data (B) is displayed, this is where the voltage reading (C) is located.

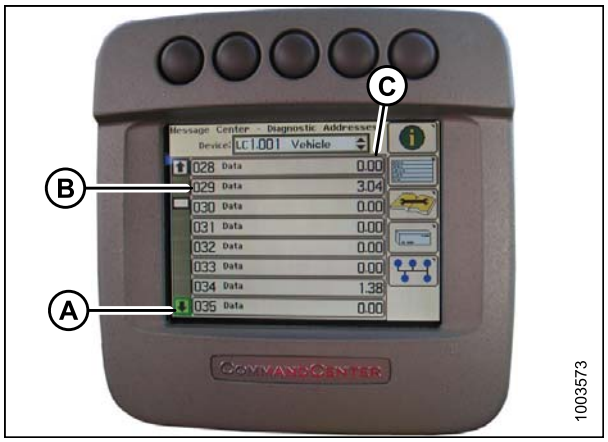


Figure 8.86: Combine Display

10. Ensure header float is unlocked.
11. Start the combine, lower feeder house to the ground until the feeder house stops moving.

NOTE:

You may need to hold the header down switch for a few seconds to ensure the feeder house is entirely down.

12. Check the sensor reading on the monitor.
13. Raise the header so it is just off the ground, and then check the sensor reading on the monitor again.
14. If the sensor voltage is not within the low and high limits, refer to *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. Refer to *Adjusting Voltage Limits, page 132*.

Calibrating Feeder House Speed (John Deere 70 Series)

Before calibrating the Auto Header Height system, you must calibrate the combine's feeder house speed. See the combine operator's manual for instructions.

Calibrating the Auto Header Height System (John Deere 70 Series)

NOTE:

The feeder house speed must be calibrated before you calibrate the Auto Header Height system. Refer to the combine operator's manual for instructions.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To calibrate the Auto Header Height System, follow these steps:

1. Rest header on downstops, and unlock adaptor float.
2. Put wings in locked position.
3. Start the combine.
4. Press the fourth button on the top of the monitor (A) to select the icon showing an open book with a wrench on it (B).
5. Press the top button (A) a second time to enter diagnostics and calibration mode.

Figure 8.87: Combine Display

6. Select the option HEADER in the box (A) by scrolling down to the box using the scroll knob and check mark button.

Figure 8.88: Combine Display

7. Scroll, using knob (A), to the option Header and select it by pressing the check mark button (B).
8. Scroll down, using the scroll knob (A), to the right-hand corner icon the arrow in the diamond, and again hit the check mark button (B) to select.
9. Follow the steps listed on the monitor to perform the calibration.

NOTE:

If an error code comes up on the monitor, the sensor is not in the correct working range. Refer to *Checking Voltage Range from the Combine Cab (John Deere 70 Series), page 170* to check and adjust the range.

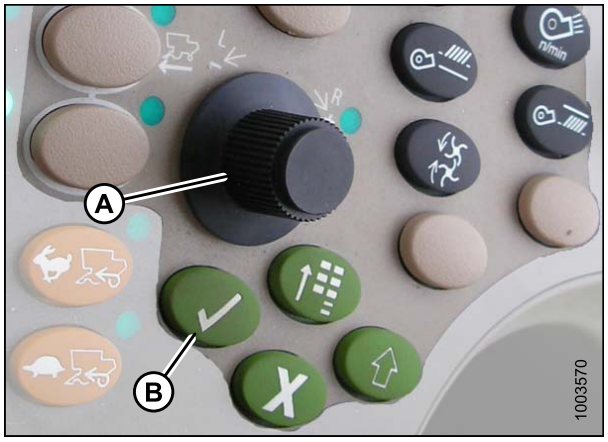


Figure 8.89: Combine Console

Increasing the Sensitivity of the Auto Header Height (John Deere 70 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To adjust the sensitivity of the Auto Header Height, follow these steps:

1. Press button (A), found on the right-hand console, twice. On the Command Center the page displays the current setting. This is your sensitivity setting, the lower the reading the lower the sensitivity.
2. To adjust the sensitivity setting, use scroll knob (B). The adjustment will be automatically saved. If the page remains idle for a short period of time it will return to its previous page or the enter button (C) can be pushed to return to the previous page.

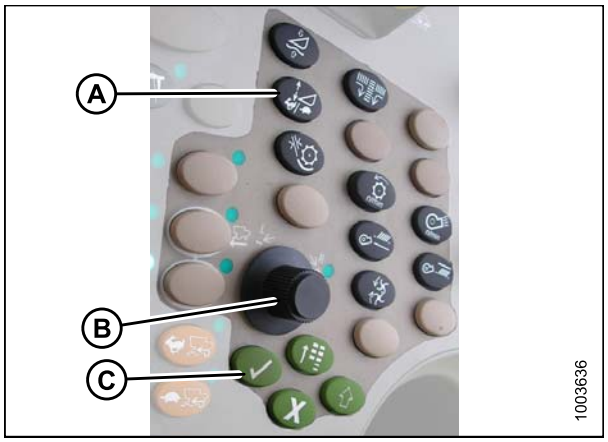


Figure 8.90: Combine Control Console

NOTE:

The numbers under this display are simply reference numbers they do not represent any particular value.

Figure 8.91: Combine Display

Adjusting the Manual Header Raise/Lower Rate (John Deere 70 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To adjust the raise/lower rate, follow these steps:

1. Press button (A), found on the right-hand console, once. On the Command Center the page displays the current setting. This is your raise/lower rate setting. The lower the reading the slow the rate.
2. To adjust the rate, use scroll knob (B). The adjustment will be automatically saved.

   If the page remains idle for a short period of time it will return to its previous page or the ENTER button (C) can be pushed to return to the previous page.

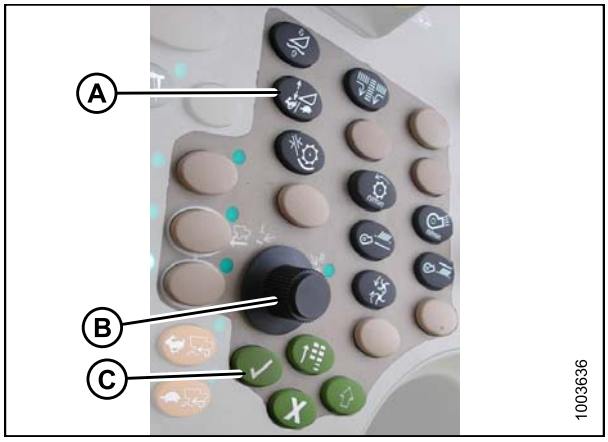


Figure 8.92: Combine Control Console

NOTE:

The numbers under this display are simply reference numbers they do not represent any particular value.

Figure 8.93: Combine Display

8.1.10 John Deere S Series Combines

Checking Voltage Range from the Combine Cab (John Deere S Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

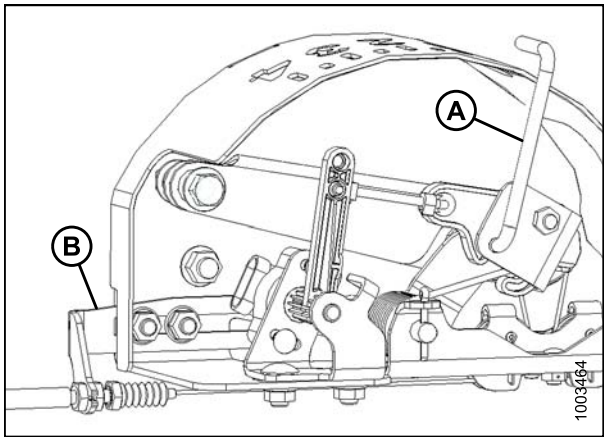


Figure 8.94: Float Indicator Box

3. From the Command Center main page press the icon with wrench on the open book (A). The CALIBRATION page appears.

Figure 8.95: Combine Display

4. On the CALIBRATION page, press the icon with wrench on the open book (A). The DIAGNOSTIC READINGS page appears. This page is where you will be able to complete calibrations, modify header option and read diagnostic information.

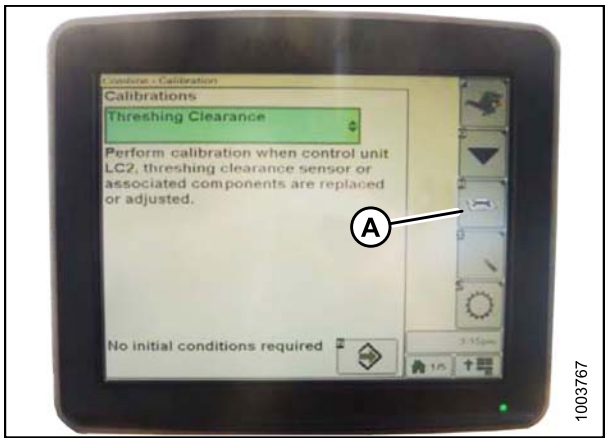


Figure 8.96: Combine Display

5. When you select a heading in the selection box (A) a list of different diagnostic readings appears. Select the AHC SENSING OPTION which will bring up the Automatic Height Control sensor.

Figure 8.97: Combine Display

6. With AHC SENSING selected, select the icon with the arrow in the box (A) on the bottom right of the page. AHC SENSING appears and provides five pages of information.

Figure 8.98: Combine Display

7. Scroll to Page 5 by pressing icon (A) until it reads Page 5 near the top of the page.
   On Page 5 you will see sensor readings:
   - LEFT HEADER HEIGHT
   - CENTER HEADER HEIGHT
   - RIGHT HEADER HEIGHT

   There is only a reading on the center Header Height sensor. On the MacDon header there is only one sensor, it is located in the float indicator box on top of the CA25.

Figure 8.99: Combine Display

8. Ensure header float is unlocked.
9. Start the combine, lower feeder house to the ground until the feeder house stops moving.

NOTE:

You may need to hold the header down switch for a few seconds to ensure the feeder house is entirely down.

10. Check the sensor reading.
11. If the sensor voltage is not within the low and high limits shown in *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to *Adjusting Voltage Limits, page 132*.

Calibrating the Auto Header Height System (John Deere S Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To calibrate the Auto Header Height System, follow these steps:

1. Rest header on down stops, and unlock adaptor float.
2. Put wings in locked position.
3. From the main page of the Command Center, press the DIAGNOSTIC button (A). This is the button with the wrench on an open book. A CALIBRATION page appears (middle picture) this is the DIAGNOSTIC page where you will be able to complete calibrations.

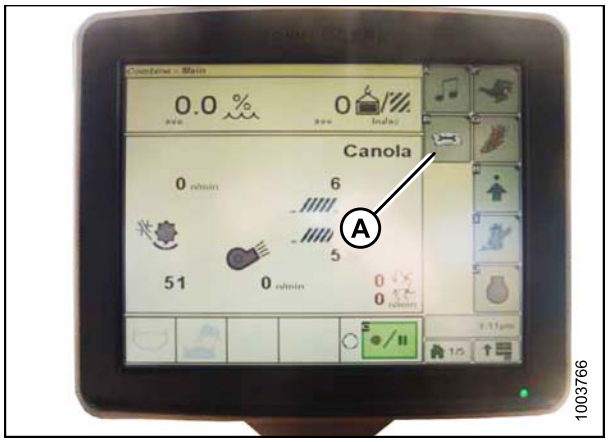


Figure 8.100: Combine Display

4. Press the green box near the top of the page (A). The CALIBRATION page appears.

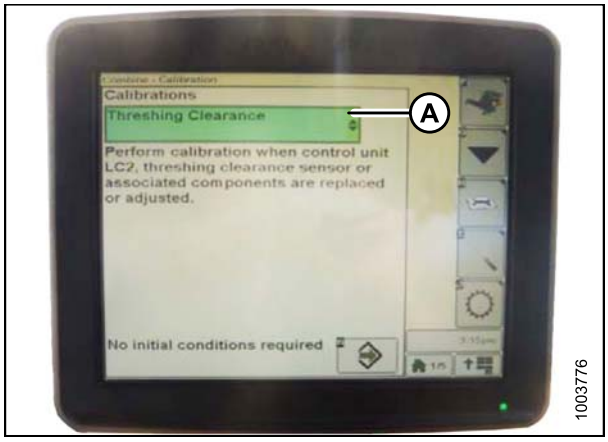


Figure 8.101: Combine Display

5. Select FEEDER HOUSE SPEED (A) as your first calibration. Once you calibrate feeder house speed you will than need to calibrate header.

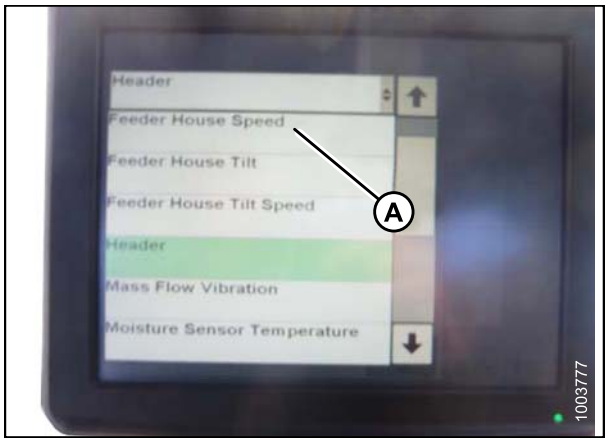


Figure 8.102: Combine Display

6. After selecting feeder house speed or header for calibration, click the arrow inside a box button (A) on the bottom right corner of the page. The button turns green.

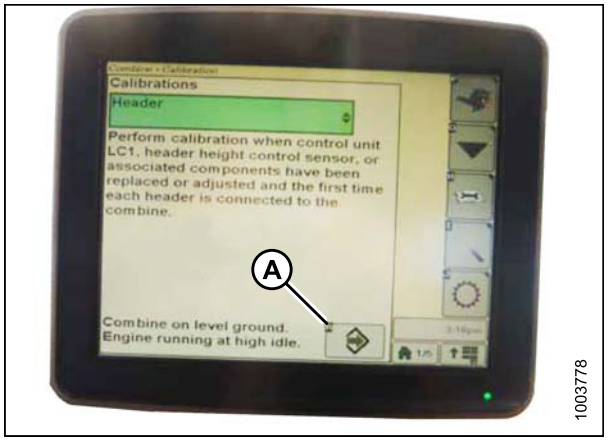


Figure 8.103: Combine Display

7. Click the button (A) again. Instructions on the page will guide you through the steps to complete with the calibration.

NOTE:

If an error code pops up during the calibration the sensor is out of voltage range and will require adjustment. Refer to *Checking Voltage Range from the Combine Cab (John Deere S Series), page 176*.

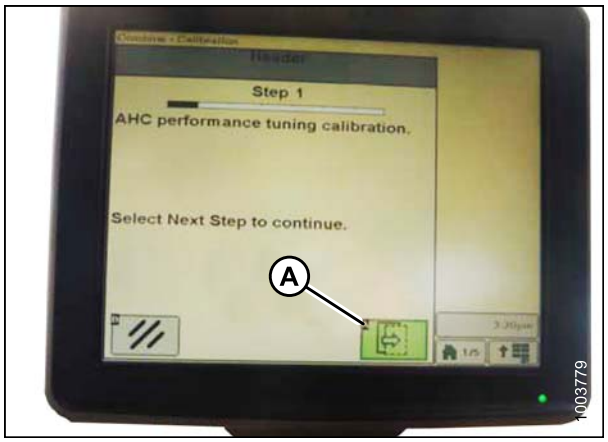


Figure 8.104: Combine Display

Increasing the Sensitivity of the Auto Header Height (John Deere S Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To adjust the sensitivity of the Auto Header Height, follow these steps:

1. Press button (A) twice. On the Command Center, the page will display the current setting.

Figure 8.105: Combine Command Center

2. To adjust rates, press the “-”or “+” sign (A) to make a change.

Figure 8.106: Combine Display

Adjusting the Manual Header Raise/Lower Rate (John Deere S Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator’s manual for updates.

To adjust the raise/lower rate, follow these steps:

1. Press the top right button (A) once. On the Command Center, the page will display the current setting.

Figure 8.107: Combine Command Center

2. To adjust rates press the “-” or “+” (A) button to make a change.

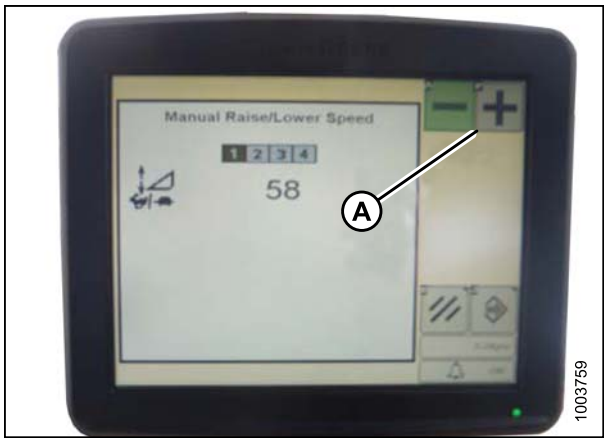


Figure 8.108: Combine Display

Setting Preset Cutting Height (John Deere S Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator’s manual for updates.

To operate your Auto Header Height, follow these steps:

1. From the main page of the Command Center, press the header option button (A).This is the icon with a header on it. The COMBINE - HEADER SETUP page displays. This page is used to set various header settings such as reel speed, header width, and height of feeder house for acre counter engagement.

Figure 8.109: Combine Display

2. To go to the automatic header modes page, select icon (A) with a side view of a header. The COMBINE – HEADER SETUP AHC page displays.

Figure 8.110: Combine Display

3. Select the top left and center icons for auto height sensing and return to cut.

Figure 8.111: Combine Display

4. After the two icons are selected, you will be able to set the ground pressure preset on the joy stick by having button #2 as a light ground pressure setting for muddy or soft soil conditions, and button #3 as a heavier setting for harder soil conditions with a faster ground speed so the header does not skip crop.

   Button #1 is reserved for header lift on the headland, it does not have ground cutting capabilities.

Figure 8.112: Use the Joystick to Set the Ground Pressure Presets

5. Adjustment for selecting the different button settings is done by control knob (A).

Figure 8.113: Combine Control Console

6. When the header height is engaged, the Auto header height icon appears on the monitor with the number from which button is pressed.

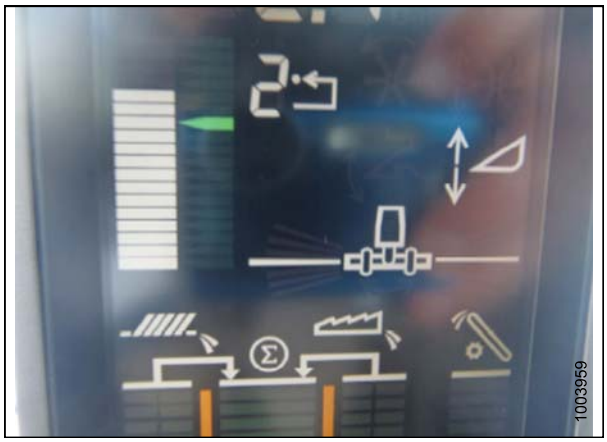


Figure 8.114: Combine Display

8.1.11 Lexion 500 Series Combines

Calibrating the Auto Header Height System (Lexion 500 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To calibrate the Auto Header Height System, follow these steps:

1. Use the "<" key or the ">" key to select "Auto header". Once selected, press the "OK" key to confirm your selection. Window (E5) displays whether the automatic header height is on or off.

2. Use the “-” key (A) or the “+” key (B) to turn the automatic header height on. Press the “OK” key (C) to confirm the setting.
3. Engage the threshing mechanism and the header.

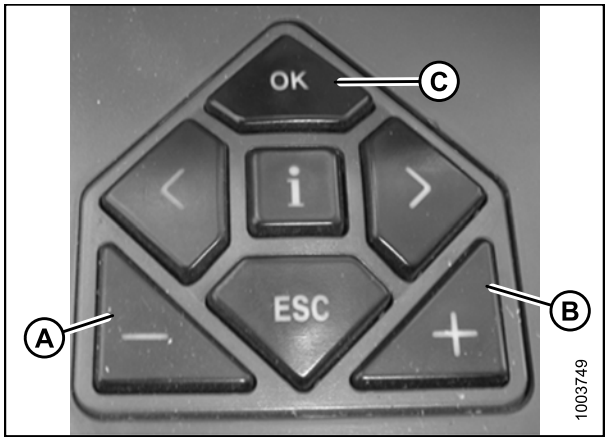


Figure 8.115: Auto Header Height System Controls

4. Use the “<“ key or use the “>” key to select “Cutt.height limits”. To confirm the selection, press the “OK” key.
5. Follow the procedure displayed on the screen. This teaches CEBIS the upper and lower limits of the header.

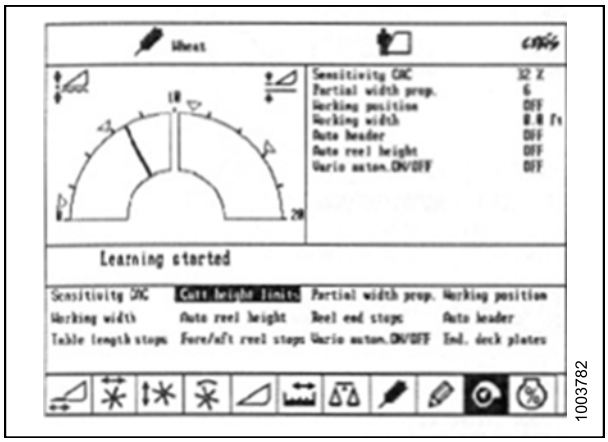


Figure 8.116: Combine Display

6. Use the “<“ key or the “>” key to select “Sensitivity CAC”. To confirm the selection, press the “OK” key. Setting the sensitivity of the AHHC system influences the reaction speed of the AHHC on the header.
7. Use the “-” key or the “+” key to change the setting of the reaction speed. Press the “OK” key to confirm the setting.

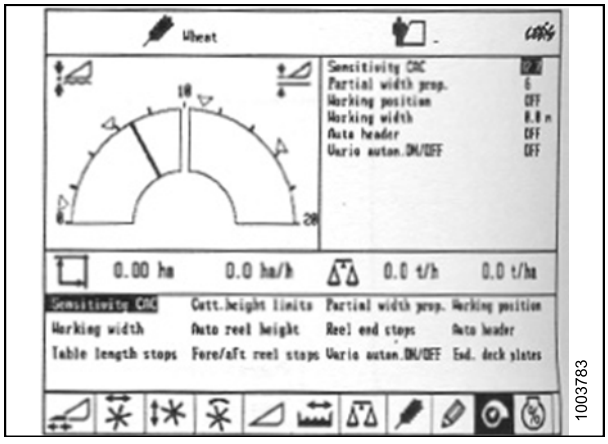


Figure 8.117: Combine Display

8. Line (A) indicates the setting of the sensitivity. Window (B) displays the (A). Also value (C) indicates the sensitivity. Window (D) displays value (C).

NOTE:

The setting can be adjusted from 0 percent to 100 percent. When sensitivity is adjusted to 0 percent, the signals from the sensing bands have no effect. When set to 100 percent, sensing bands have maximum effect on the automatic cutting height adjustment. 50% is a recommended starting point

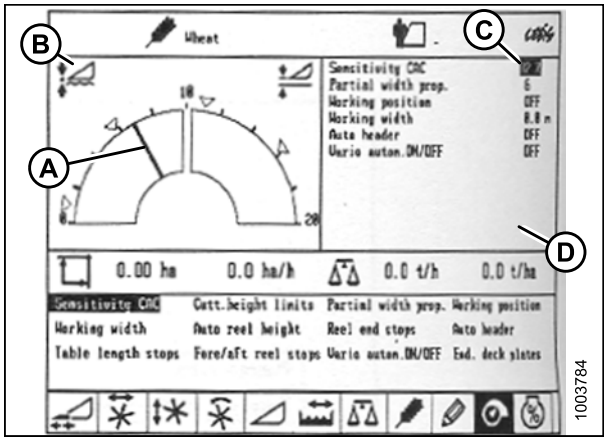


Figure 8.118: Combine Display

Setting Cutting Height (Lexion 500 Series)

The cutting heights can be programmed into the preset cutting height and into the auto contour system. Use the preset cutting height for cutting heights above 5.9 in. (150 mm). Use the auto contour system for cutting heights below 5.9 in. (150 mm).

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

Use the "<" key or use the ">" key in order to select the Cutting height window. Press the "OK" key in order to open the respective sub menu.

An active value is indicated by a solid arrow. An inactive value is indicated by an empty arrow.

Setting Preset Cutting Height (Lexion 500 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To program the settings of the preset cutting height, follow these steps:

1. Start the engine.
2. Activate the machine enable switch.
3. Engage the threshing mechanism.
4. Engage the header.

5. Briefly press button (A) in order to activate the auto contour system or briefly press button (B) in order to activate the preset cutting height.

NOTE:

Button (A) is used only with AHHC function. Button (B) is used only with the return to cut function.

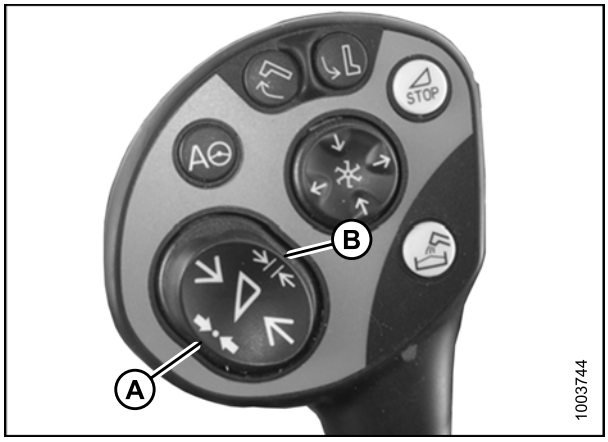


Figure 8.119: Activate the Auto Contour System, and the Preset Cutting Height

6. Use the “-” key (A) or use the “+” key (B) in order to set the desired cutting height. An arrow indicates the selected cutting height on the scale.

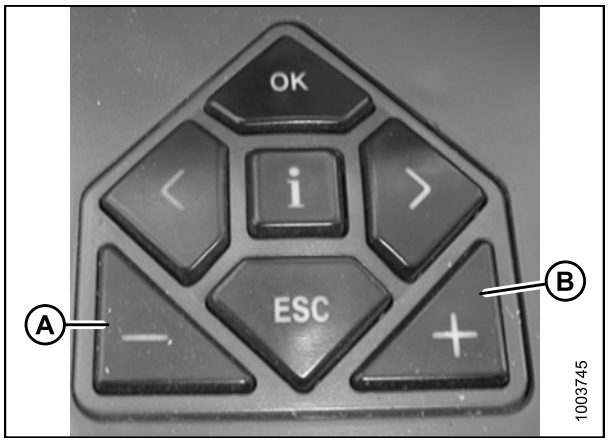


Figure 8.120: Set the Desired Cutting Height

7. Briefly press button (A) or button (B) in order to select the set point.
8. Repeat Step *6., Setting Preset Cutting Height (Lexion 500 Series), page 187* for the set point.

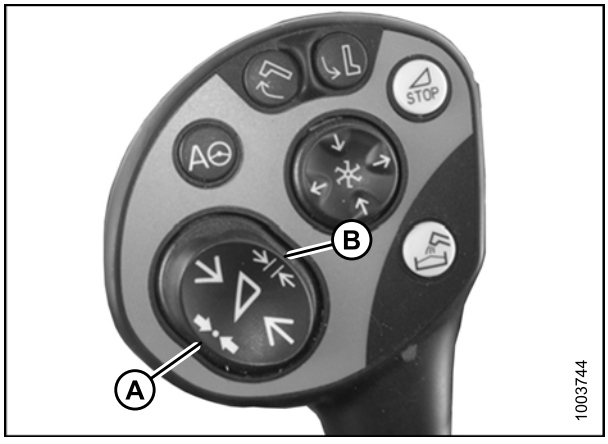


Figure 8.121: Select the Set Point

Setting Cut Height Manually (Lexion 500 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To set the cutting height manually, follow these steps:

1. When you enter the crop use button (A) or use button (B) in to raise or lower the header to the desired cutting height. For on the ground cutting press button (C) for three seconds. This stores the cutting height into the CEBIS. The alarm will sound when the new setting is stored.
2. If desired using button (A) or (B) move the header on the ground and briefly press button (C)in order to set a second set point. For above the ground cutting repeat the above steps only this time press button (D) to set points.
3. Repeat Step *1., Setting Cut Height Manually (Lexion 500 Series), page 188* for the second set point.

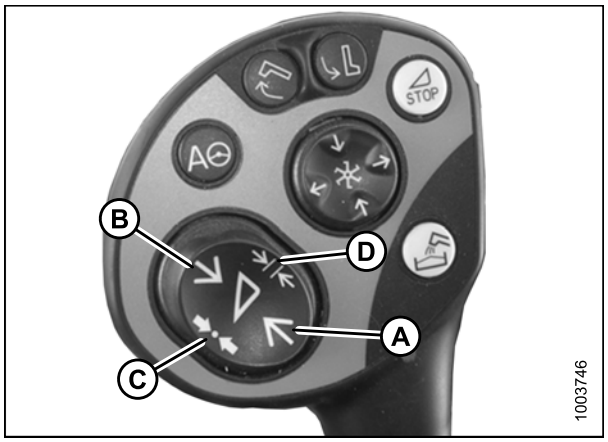


Figure 8.122: Set the Cutting Height Manually

Adjusting the Sensitivity of the Auto Header Height (Lexion 500 Series)

Setting the sensitivity of the auto header height control (AHHC) system influences the reaction speed of the AHHC on the header.

NOTE:

CEBIS must learn the upper limits and the lower limits of the header before you adjust the sensitivity of the AHHC system. The setting can be adjusted from 0 percent to 100 percent. When sensitivity is adjusted to 0 percent, the signals from the sensing bands have no effect. When set to 100 percent, sensing bands have maximum effect on the automatic cutting height adjustment. 50% is a recommended starting point.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Use the “<” key or the “>” key to select “Sensitivity CAC”. Press the “OK” key to confirm the selection.
2. Use the “-” key or the “+” key to change the reaction speed setting. Press the “OK” key in order to confirm the setting.

Figure 8.123: Combine Controls

3. Line (A) indicates the setting of the sensitivity. Window E4 (B) displays the (A). Also value (C) indicates the sensitivity. Window E5 (D) displays value (C).

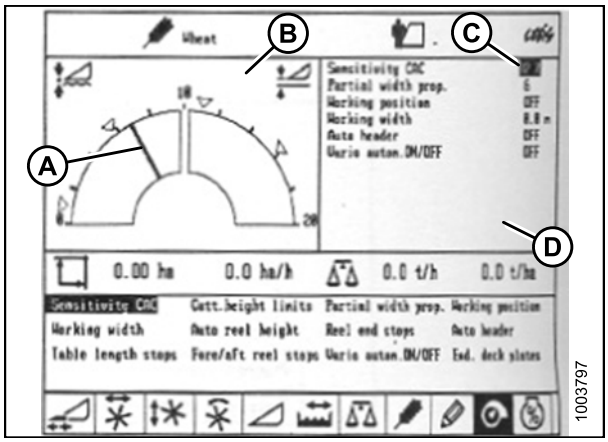


Figure 8.124: Combine Display

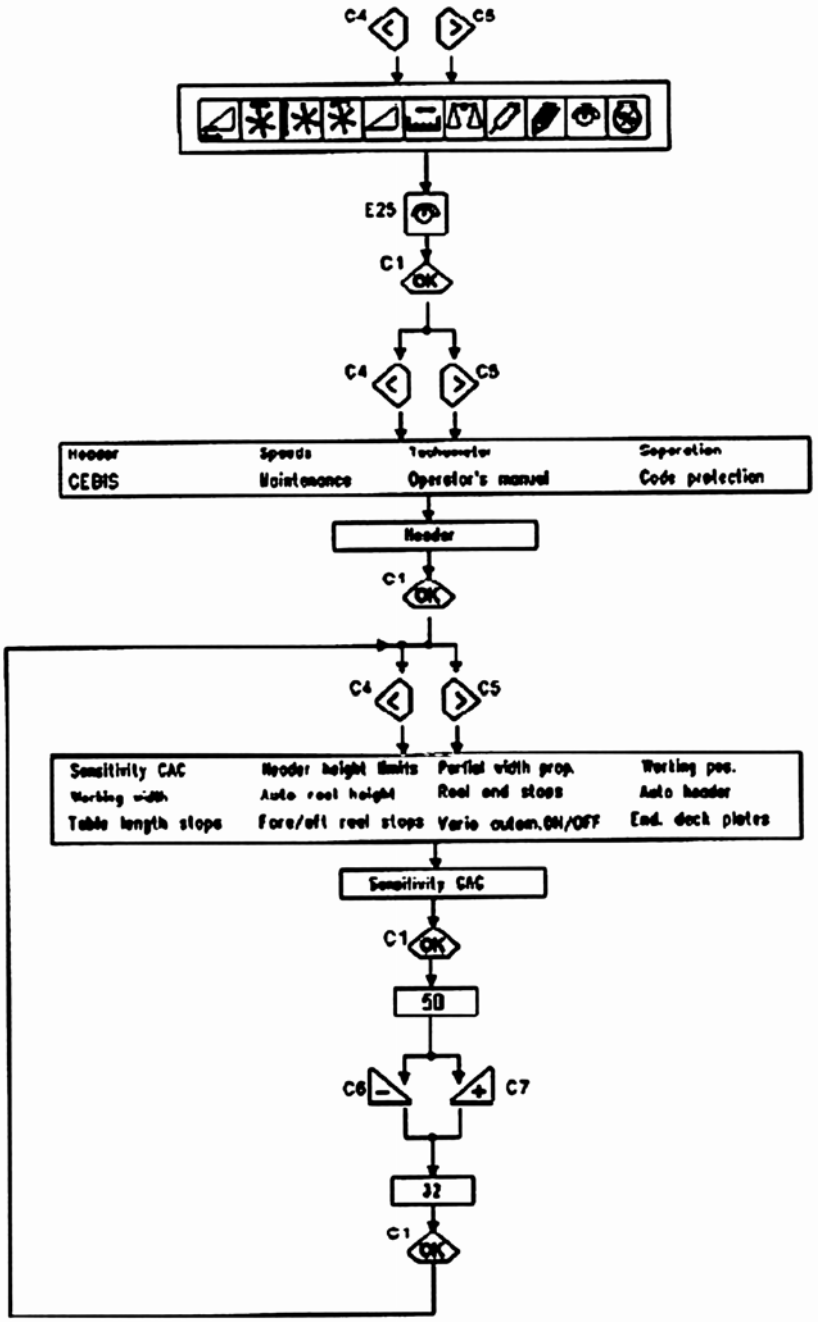


Figure 8.125: Flow Chart for Setting the Sensitivity of the Float Optimizer

Adjusting Auto Reel Speed (Lexion 500 Series)

The preset reel speed can be set when the automatic header functions are activated.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To set the preset reel speed, follow these steps:

1. Use the "<" key or the ">" key to select reel window. When reel window is selected, window (E15) will display the current advance or retard speed of the reel relation to the ground speed.

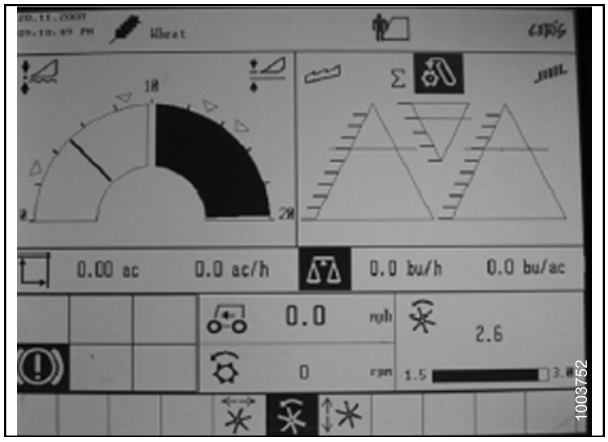


Figure 8.126: Combine Display

2. Press the "OK" key (C) in order to select the reel speed window.
3. Use the "-" key (A) or use the "+" key (B) in order to set the reel speed in relation to the current ground speed. Window (E15) will display the selected reel speed.

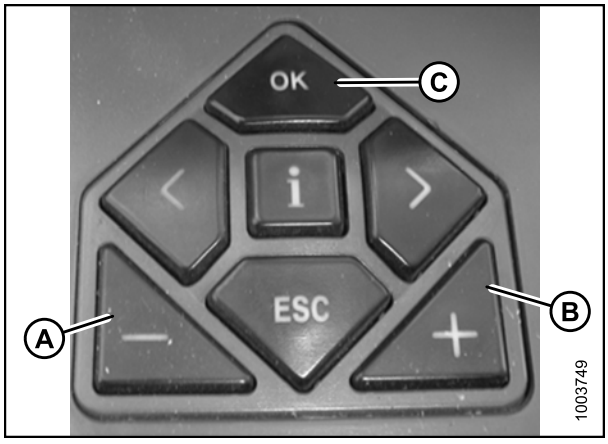


Figure 8.127: Combine Controls

You can also manually adjust the reel speed by rotating the rotary switch to the reel position (A), and then using the “-” key or the “+” key to set the reel speed.

Figure 8.128: Combine Rotary Switch

4. Press button (A) or (B) for three seconds in order to store the setting into CEBIS.

   NOTE:

   The alarm will sound when the new setting is stored.

   NOTE:

   Whenever button (A) or (B) is pressed for three seconds, the current positions for the following functions are stored: reel speed and cutting height.

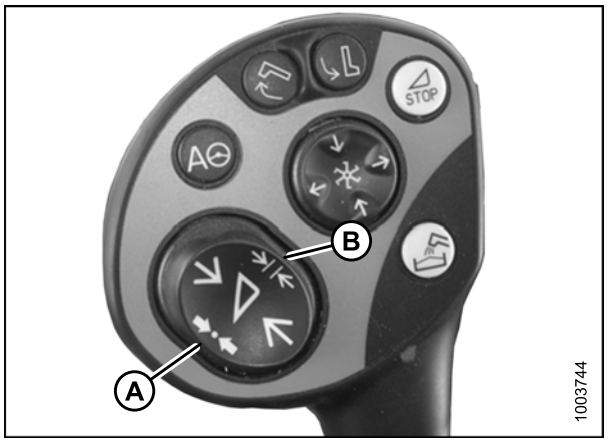


Figure 8.129: Press A or B Button to Store Settings

5. Use the “<” key or the “>” key to select the reel window. When the reel window is selected, window (E15) will display the current advance or retard speed of the reel in relation to the ground speed.

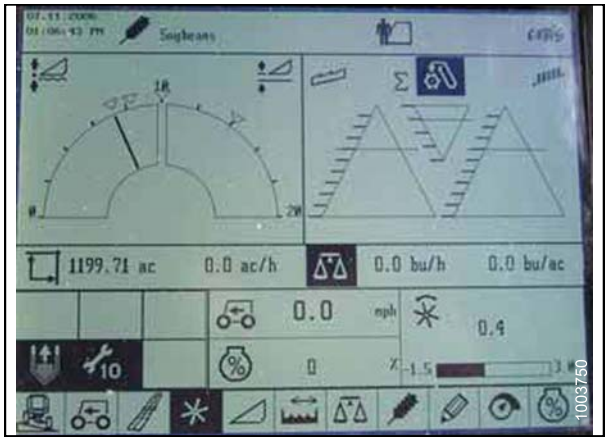


Figure 8.130: Combine Display

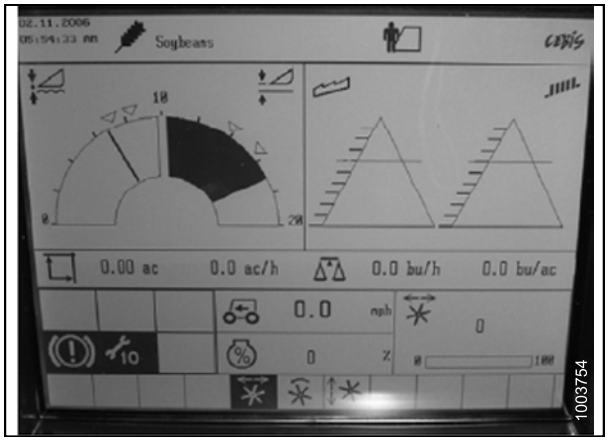


Figure 8.131: Combine Display

6. Press the “OK” button (C). Use the “<“ key or the “>” key to select the reel fore and aft window.
7. Use the “-” key (A) or the “+” key (B) to set the fore-aft position of the reel.

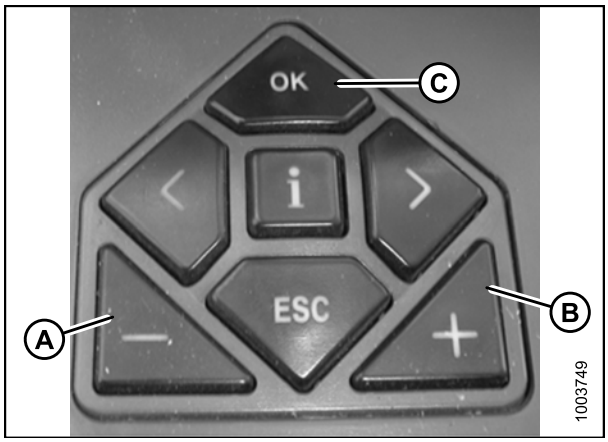


Figure 8.132: Set the Fore-Aft Position of the Reel

NOTE:

You can also use button (A) or (B) to set the fore-aft position of the reel.

8. Press button (C) or button (D) for three seconds to store the setting into CEBIS.

   NOTE:

   The alarm will sound when the new setting is stored.

   NOTE:

   Whenever button (C) or button (D) is pressed for three seconds, the current positions for the following functions are stored: reel speed and cutting height.

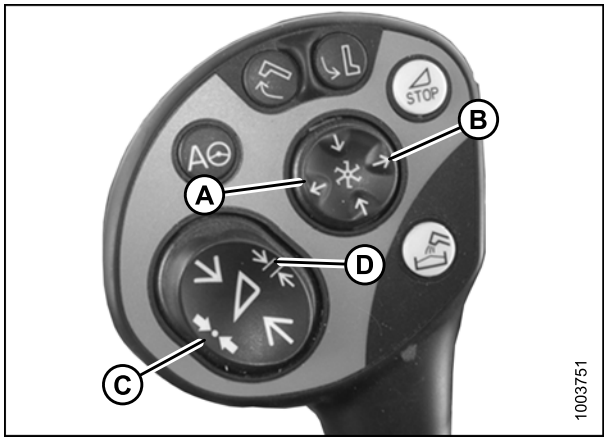


Figure 8.133: Set and Story the Fore-Aft Position of the Reel

8.1.12 Lexion 700 Series Combines

Calibrating the Auto Header Height System (Lexion 700 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To calibrate the Auto Header Height System, follow these steps:

1. To calibrate the Auto Contour, select the icon with the reel in the header by pushing control knob (A). The control knob (A) is used to scroll left and right in top row (B). Once you find symbol you want to work with push (A) to select this field.

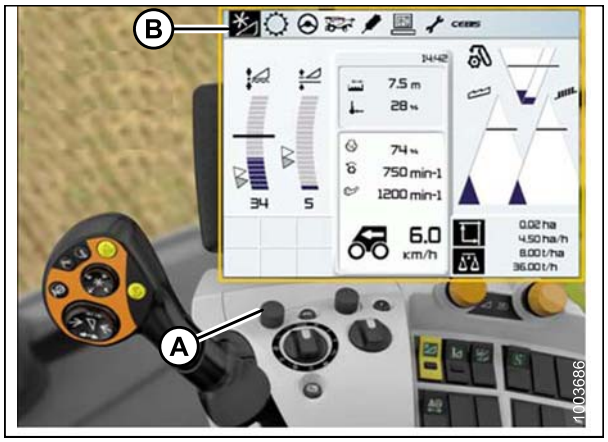


Figure 8.134: Combine Display, Console, and Propulsion Lever

2. When the header with up and down arrows is highlighted push control knob (A). The following screen will show up with the header icon highlighted (B).

Figure 8.135: Combine Display, Console, and Propulsion Lever

3. The following screen will show up with A highlighted (B). Scroll right using the control knob (A) to highlight the icon of the header with up and down arrows (C) behind it.

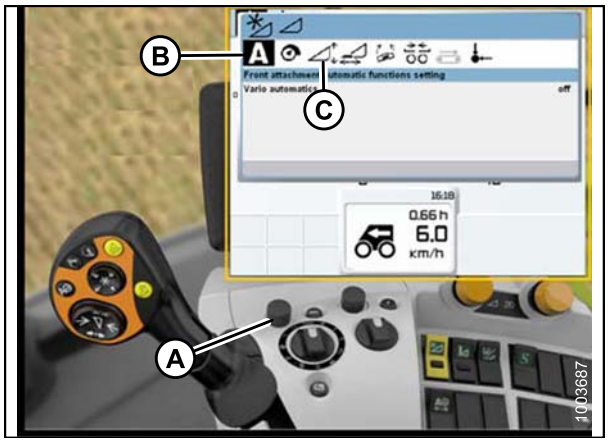


Figure 8.136: Combine Display, Console, and Propulsion Lever

4. The Letter A and the screwdriver icon appear. Rotate control knob (A) until the screwdriver is highlighted (B).
5. Once this icon appears engage the combine separator and feeder house.
6. Push the control knob (A) and the following graph will appear with a percentage value at 0.

Figure 8.137: Combine Display, Console, and Propulsion Lever

7. Raise the feeder house all the way up. This will allow the graph to go to 25% (A).
8. Lower the feeder house all the way down until header stops moving. Ensure header float is unlocked. The graph will now be at 50%.
9. Raise the feeder house (a second time) all the way up.This will allow the graph to go to 75%.
10. Lower the feeder house all the way down until header stops moving.The graph will now be at 100%.

Figure 8.138: Combine Display, Console, and Propulsion Lever

11. Once the calibrations are complete, the graph will indicate the unit is calibrated successfully by showing 100% (A).

NOTE:

At any time through the calibration, if the voltage is not within the voltage settings (0.5–4.5 volts) the monitor will indicate learning procedure not concluded.

NOTE:

If the float is set to light, an error will appear. Back float off three more turns on the coil springs. This should make float around 100–125 lbs.

12. The calibration procedure is now complete.

Figure 8.139: Combine Display, Console, and Propulsion Lever

Setting Cutting Height (Lexion 700 Series)

To set cutting height, follow these steps:

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To set cutting height, follow these steps:

1. Lower the header to desired cutting height or ground pressure setting. The indicator on the float indicator box (white box on top of the CA25 adapter) should be set to 1.5.

2. Hold the left side of the header lift and lower switch (A) until you hear a ping.

   NOTE:

   You can set two different cutting heights.

Figure 8.140: Combine Display, Console, and Propulsion Lever

Adjusting Sensitivity of the Auto Header Height (Lexion 700 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To adjust the sensitivity of the Auto Header Height, follow these steps:

1. Use control knob (A) to navigate to the header and reel icon (B) on the CEBIS screen.
2. Push the knob to select this icon. The header/reel window opens.

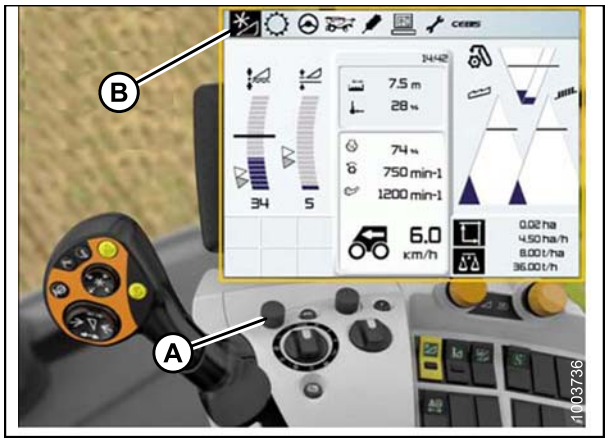


Figure 8.141: Combine Display, Console, and Propulsion Lever

3. Select the Front attachment parameter settings icon (A). A list of settings appears.
4. Select Sensitivity CAC (B) from the list.

Figure 8.142: Combine Display, Console, and Propulsion Lever

5. Select the Sensitivity CAC icon (A).
6. To set the sensitivity you will have to change the cutting height adjustment from the 0 default. The settings between 1 to 50 provide a faster response. Settings between -1 to -50 provide a slower response. When making adjustments to the above numbers, do it in increments of 5.
   There are two settings to change:
   - Cutting Height Adjustment (B)
   - Auto Drop Rate

   When you are cutting on the ground and the reaction between the header and the adapter is too slow, increase the Cutting Height Adjustment setting.

   When the feeder house reacts (hunting) up and down too fast, decrease the cutting height adjustment.

   When lowering the header takes too much time, increase the sensitivity.

   When the header hits the ground to hard and too quickly, decrease the sensitivity.

Figure 8.143: Combine Display

Adjusting Auto Reel Speed (Lexion 700 Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To adjust the auto reel speed, follow these steps:

1. Use control knob (A) to navigate to the header and reel icon (B) on the CEBIS screen.
2. Push the knob to select this icon. The header/reel window opens.

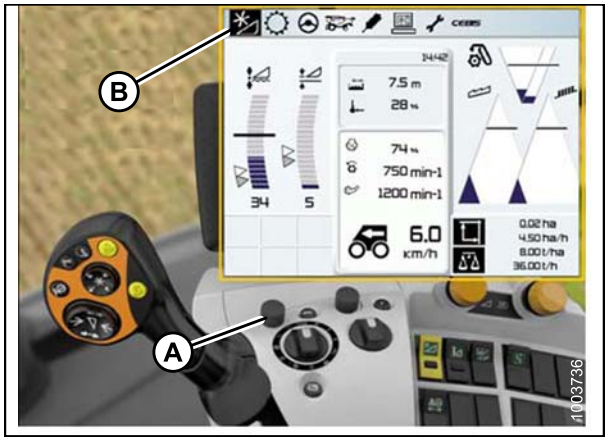


Figure 8.144: Combine Display, Console, and Propulsion Lever

3. If you are not using Auto Reel Speed, in the window under Reel, select Reel speed (A). A graph displays. Use control knob (B) to adjust the reel speed.

Figure 8.145: Combine Display, Console, and Propulsion Lever

4. If you are using Auto Reel Speed, in the window under Auto reel speed, select Actual value (A). The Actual value window opens and displays the auto reel speed.

Figure 8.146: Combine Display, Console, and Propulsion Lever

5. Use control knob (A) to reduce or increase the reel speed.

Figure 8.147: Combine Display, Console, and Propulsion Lever

8.1.13 New Holland Combines

Checking Voltage Range from the Combine Cab (New Holland)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab, follow these steps:

1. Position the header 6 in. (150 mm) above the ground. Unlock the adapter float.

NOTE:

If the header is not on down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the Auto Header Height system.

2. The pointer (A) on the float indicator box should point at zero. If it does not point at zero, adjust the cable take-up bracket (B) until it does.

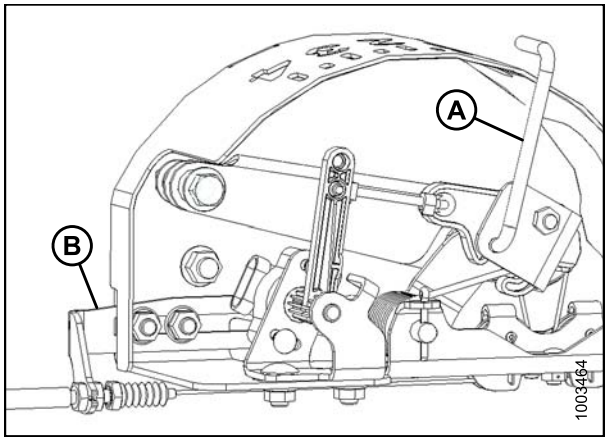


Figure 8.148: 5 Volt Auto Header Height Sensor Assembly

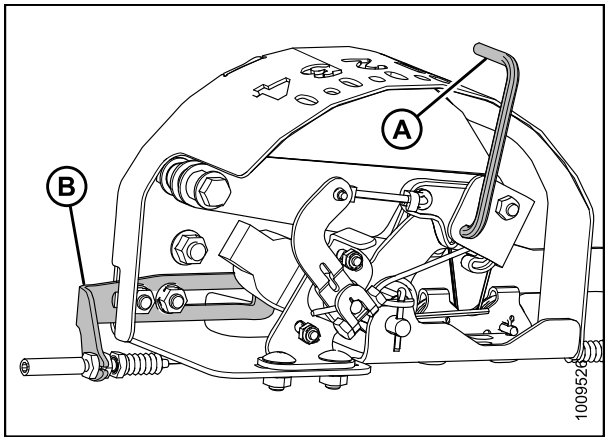


Figure 8.149: 10 Volt Auto Header Height Sensor Assembly

3. Ensure header float is unlocked.
4. On the MAIN screen, select DIAGNOSTICS (A). The DIAGNOSTICS screen displays.
5. Select SETTINGS. The SETTINGS screen displays.

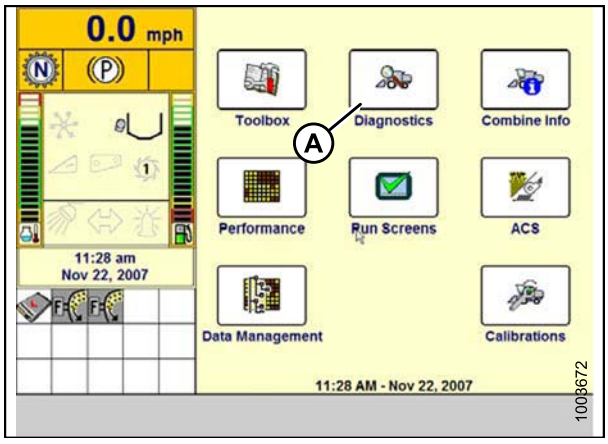


Figure 8.150: Combine Display

6. Select the GROUP arrow (A). The GROUP window opens.

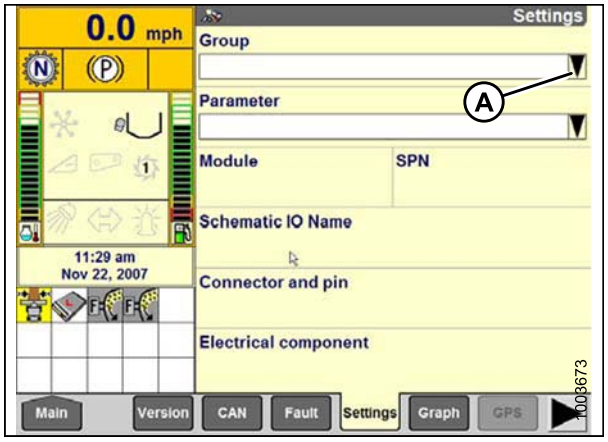


Figure 8.151: Combine Display

7. Select HEADER HEIGHT/TILT(A). The PARAMETER window opens.

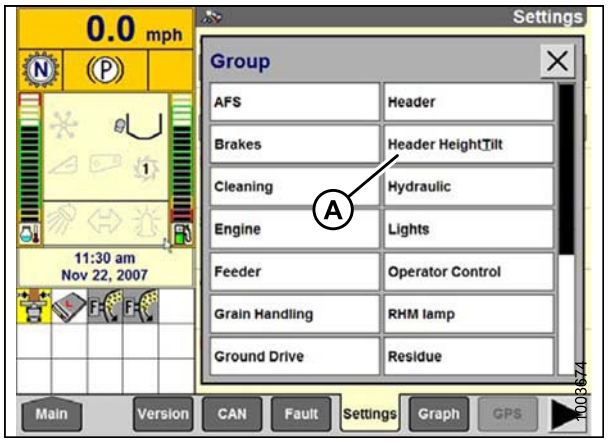


Figure 8.152: Combine Display

8. Select LEFT HEADER HEIGHT SEN (A), and then select the GRAPH button at the bottom of the screen. The exact voltage is displayed at top of screen. Raise and lower the header to see the full range of voltage readings.
9. If the sensor voltage is not within the low and high limits shown in *8.1.1 Height Sensor Output Voltage Range – Combine Requirements, page 130*, or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to *Adjusting Voltage Limits, page 132*.

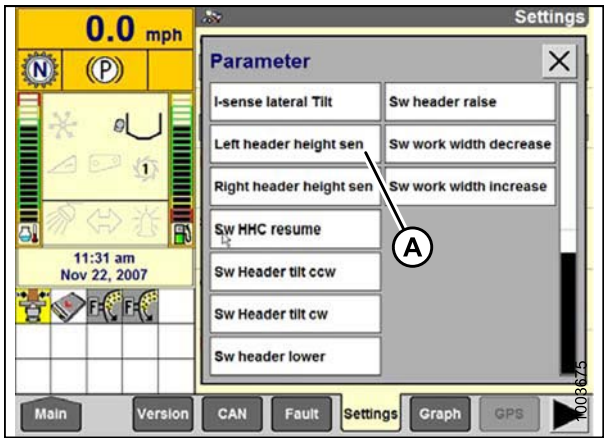


Figure 8.153: Combine Display

10. Push the GRAPH tab beside the SETTINGS tab to view the voltage.

Figure 8.154: Combine Display

Configuring Combine (New Holland CR/CX Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To configure the combine, follow these steps:

1. On the combine display screen, select Header lateral float, and then press ENTER.
2. In the window that opens, select Installed. You can use the up and down navigation keys to move between options.

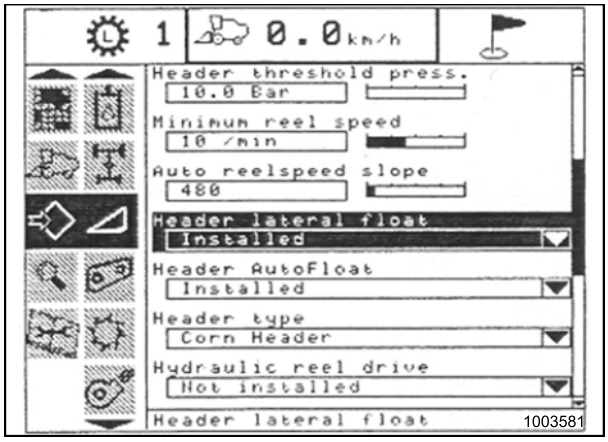


Figure 8.155: Combine Display

3. On the combine display screen, select Header Autofloat, and then press ENTER.
4. In the window that opens, select Installed.

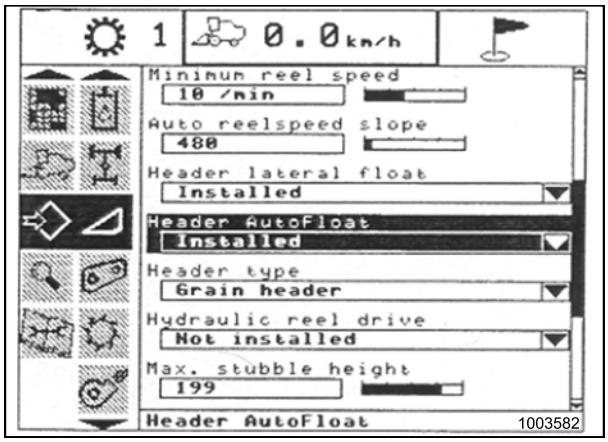


Figure 8.156: Combine Display

Calibrating the Auto Header Height System (New Holland CR/CX Series)

For best performance of the Auto Header Height system, perform ground calibration with center-link adjusted as long as possible. When calibration is complete, adjust the center-link back to desired header angle.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

Check the following conditions before starting the header calibration procedure:

- The header is attached to the combine.
- The combine is on level ground, with the header level to the ground.
- The header is on down stops and the center-link is back.
- The engine is running.
- The combine is not moving.
- No faults have been received from the Header Height Controller (HHC) module.
- Header/feeder is disengaged.
- Lateral flotation buttons are NOT pressed.
- ESC key is not pressed.

To calibrate the Auto Header Height System, follow these steps:

1. On the combine display, select the calibration sub-menu, and then press the "right arrow" navigation key to enter the information box.
2. Select Header.
   You can use the "up" and/or "down" navigation keys to navigate through the list of items to calibrate.

Figure 8.157: Combine Display

3. Press ENTER. The calibration window opens. You are now in Calibration mode.

4. At the top of the calibration window is a description of the item to be calibrated. Below that, there is a description of the calibration conditions and procedure. Follow the steps as described in the window. As you proceed through the calibration process, the display will automatically update to show the next step.
   For example, when the delay says “First press ENTER, then pulse header down switch”, you should press ENTER, and then press the header down key.

   Pressing the ESC key in one of the steps will cause the calibration procedure to stop.

   Not reacting to the system within three minutes, will cause the calibration procedure to stop.

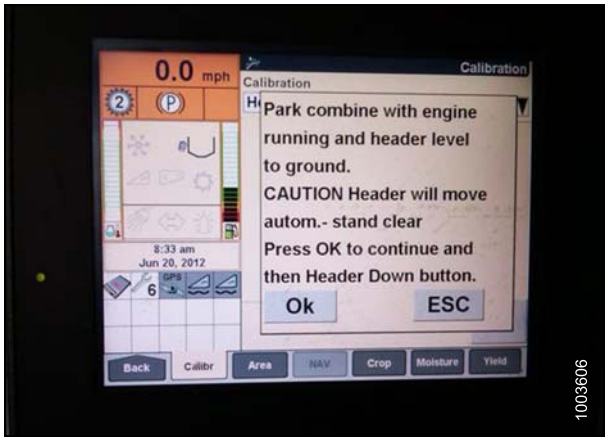


Figure 8.158: Combine Display

NOTE:

Refer to combine operator’s manual for an explanation of any error codes.

5. When all steps have been completed, “Calibration successful” is displayed on the screen. Leave the calibration by pressing the ENTER or ESC key.
6. If unit does not function properly, conduct the maximum stubble height calibration.

NOTE:

If float was set heavier to complete ground calibration procedure, adjust to recommended operating float after the calibration is complete.

Maximum Stubble Height Calibration

This is necessary to know from which height the area counter should stop or start counting. When the header is raised before this level the area counter assumes you are not cutting crop. You have to put the header at a certain height you will always exceed when not cutting and at a certain height you will always stay below when cutting.

Select the height of the header that corresponds to the description above.

IMPORTANT:

- If the value is set too low, area may be counted since sometimes the header is raised above this threshold although the combine is still cutting.
- If the value is set too high, the area counter will keep cutting even when the header is raised (but below this threshold) and the combine is not cutting crop any more.

To calibrate the maximum stubble height, proceed as follows:

1. Select the “Maximum Stubble Height” calibration window.
   Message: “Set header to desired maximum stubble height”.

   Message: “Then press enter”.

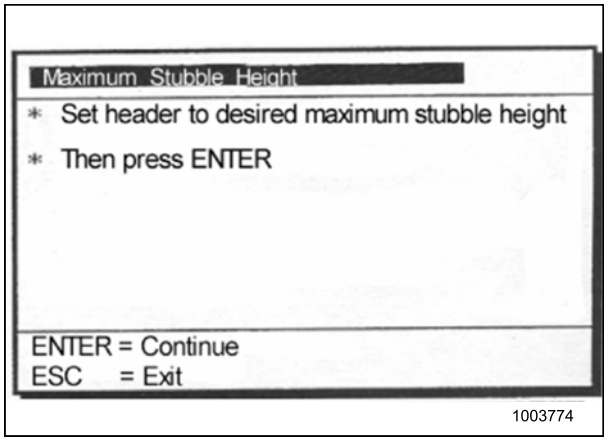


Figure 8.159: Calibration Window

2. Put header to the correct position using the header up or down control switch on the multifunction handle.
3. Press “enter” to continue.
   Message: “Calibration successful”.
4. The calibration is done. Press ENTER or ESC to close the calibration window.

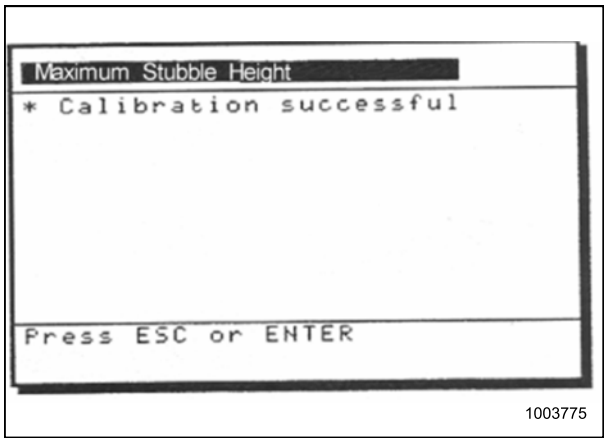


Figure 8.160: Calibration Window

Adjusting Header Raise Rate (New Holland CR/CX Series)

If the header raise rate (the first speed on the header height rocker switch of the multifunctional handle) is not acceptable, it can be adjusted.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator’s manual for updates.

To adjust the header raise rate, follow these steps:

1. On the combine display screen, select Header raise rate.
2. Use the “+” or “–“ buttons to change the setting.
3. Press ENTER to save the new setting.

NOTE:

The raise rate can be changed between 32 and 236 in steps of 34. The factory setting is 100.

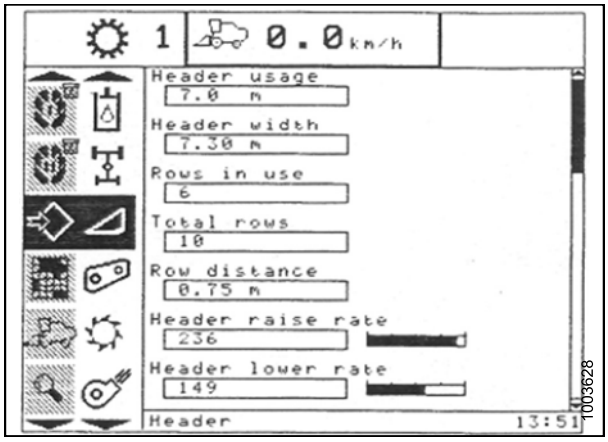


Figure 8.161: Combine Display

Setting the Header Lower Rate to 50 (New Holland CR/CX Series)

The fast lower speed (the automatic header height control button or second speed on the header height rocker switch of the multi-function handle) can be changed.

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator’s manual for updates.

To set the header lower rate, follow these steps:

1. On the combine display screen, select Header lower rate.
2. Use the “+” or “–“ buttons to change the setting to 50.
3. Press ENTER to save the setting.

NOTE:

The setting can be changed between 2 and 247% in steps of 7. It is factory set to 100%.

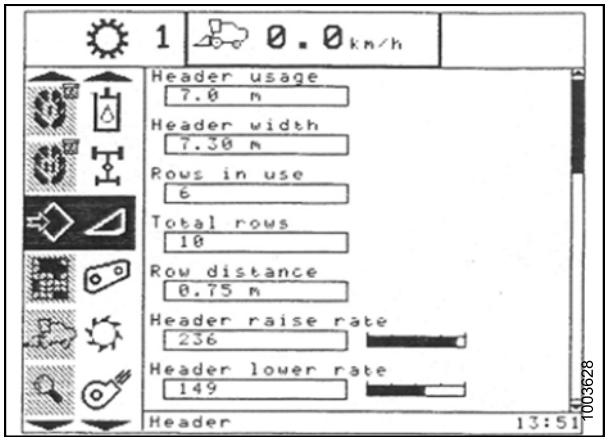


Figure 8.162: Combine Display

Setting the Auto Header Height Sensitivity to 200 (New Holland CR/CX Series)

NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator’s manual for updates.

To set the auto header height sensitivity, follow these steps:

1. Engage threshing, and feeder house.
2. On the combine display screen, select Height Sensitivity.
3. Use the “+” or “–“ buttons to change the setting to 200.
4. Press ENTER to save the setting.

NOTE:

The setting can be changed between 10 and 250 in steps of 10. It is factory set to 100.

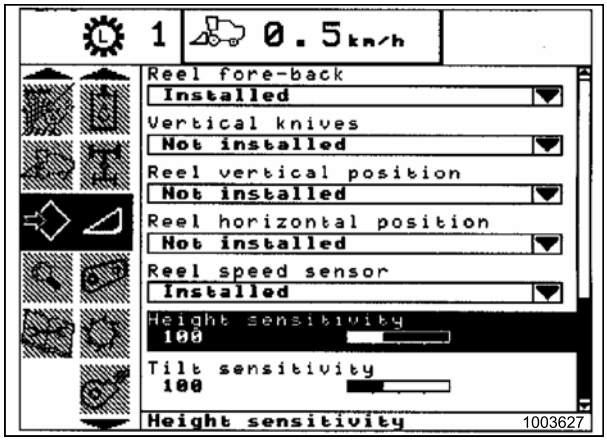


Figure 8.163: Combine Display

8.1.14 Sensor Operation

The position sensor supplied with the Auto Header Height is (1K) 1000 ohm industrial series sensors containing sealed connectors. Normal operating signal voltages for the sensors fall between 10% (0.5VDC) and 90% (4.5VDC).

Below 5%, a sensor is considered to be shorted; above 95%, open. An increase in sensor voltage correlates to an increase in header height. Each sensor is constructed with a power wire and a ground wire. Inside the sensor, these two wires are connected by a high resistance filament band (C). The resistance measured across the power (A) and ground (B) wires, should read a constant value between 800 and 1200 ohms (0.8-1.2 k) with the nominal reading being 1000 ohms (1 k).

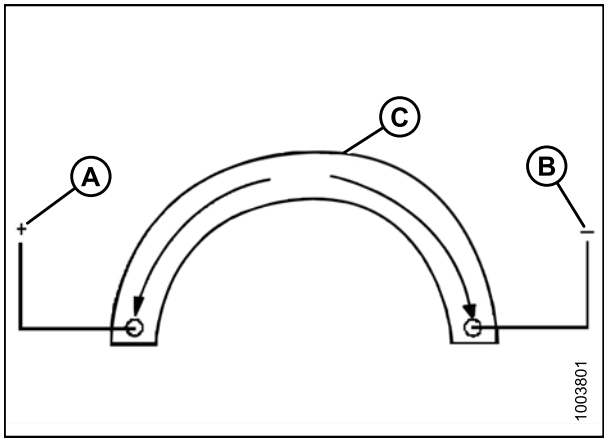


Figure 8.164: Power, Ground, and Signal Wires

In addition to the power (A) and ground (B) wires, a signal wire (C) is connected internally to a movable wiper that sweeps the high resistance filament band. This wiper is attached to an external arm. As the external arm is rotated and the wiper is moved toward or further away from the power wire connection, the measure of resistance at the signal wire (C) changes.

The resistance measured across the signal and ground wires should show a uniform progressive increase from a low (80–100 ohms) to a high (800–1200 ohms). This can be observed if an ohmmeter is connected across the signal and power wires and the sensor shaft rotated. When an input voltage is applied to the high resistance filament band through the power wire (A) the output (or “measured”) voltage in the signal wire (C) is changed by this variable resistance

NOTE:

Ground and power wires may differ depending on combine.

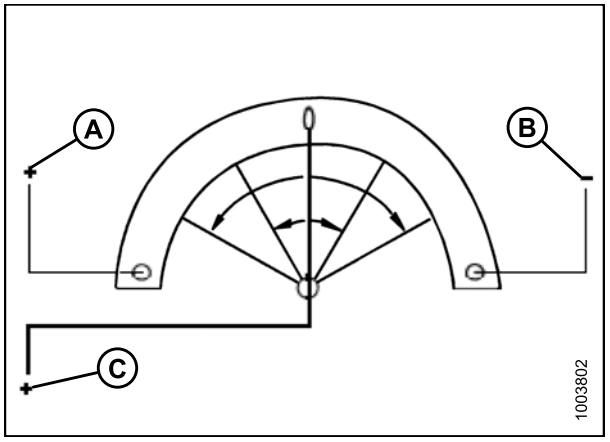


Figure 8.165: Power, Ground, and Signal Wires

9 Running Up Header

To run up the header, follow these steps:

CAUTION

Never start or move the machine until you are sure all bystanders have cleared the area.

1. Start combine, raise header fully, and engage header lift cylinder locks. Shut down combine, and remove key.

WARNING

Stop combine engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.

DANGER

Engage header safety props and reel props before working under header or reel.

2. Lower poly pan under adapter, and check for shipping materials/debris that may have fallen under adapter draper.
3. Rotate latches (A) to unlock handle (B).
4. Hold pan (C), and rotate handle (B) to release pan. Lower pan to expose draper.

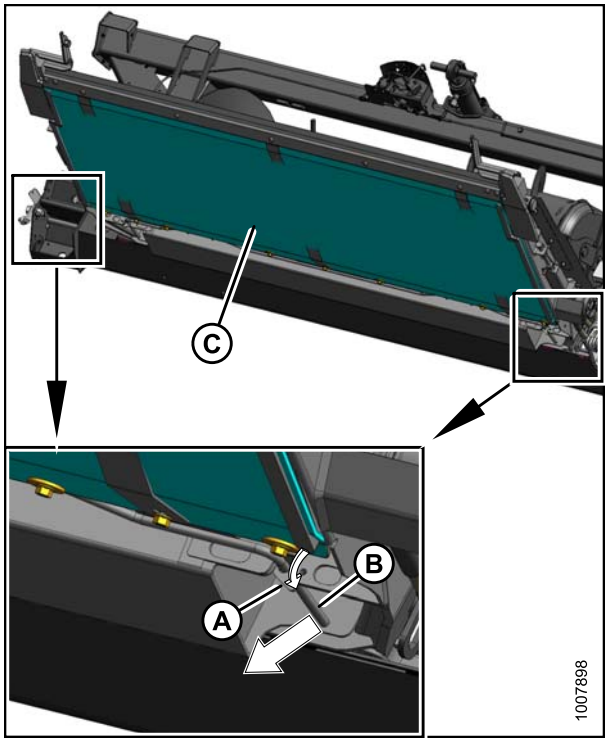


Figure 9.1: Adapter Poly Pan

5. Check and remove debris from pan (A) and draper.

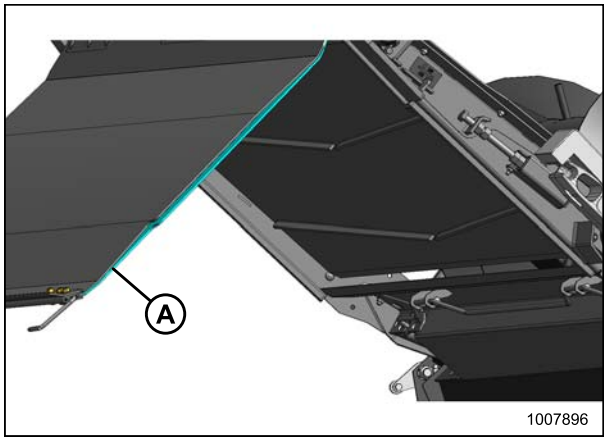


Figure 9.2: Adapter Poly Pan

6. Raise pan, and rotate handle (B) so that rod engages clips (D) on pan.

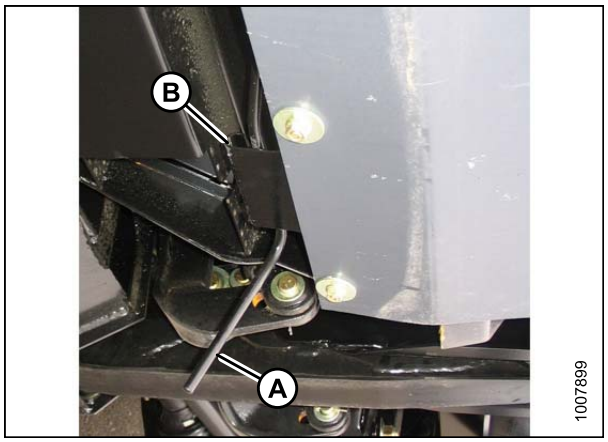


Figure 9.3: Clips Engaged

7. Push handle (B) into slot, and secure with latches (A).
8. Open left-hand endshield.

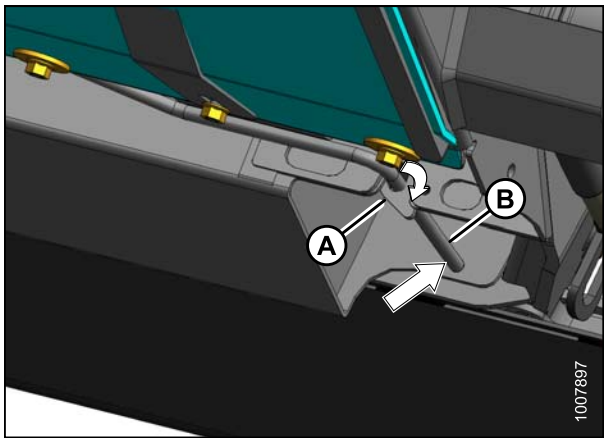


Figure 9.4: Latches Secured

9. Check that Flow Control (A) is factory-set to position '6' as shown. If required, turn knob so that setting lines up with slot in panel.
10. Ensure feeder house variable speed is set to MINIMUM.

CAUTION

Never start or move the machine until you are sure all bystanders have cleared the area.

11. Start combine, and run the machine slowly for 5 minutes, watching and listening FROM THE OPERATOR'S SEAT for binding or interfering parts.

NOTE:

Reel and side drapers will not operate until oil flow fills the lines.

12. Run the machine at operating speed for 15 minutes. Listen for any unusual sounds or abnormal vibration.
13. Perform run-up check as listed on *Predelivery Checklist, page 219* (yellow sheet attached to this instruction) to ensure the machine is field-ready

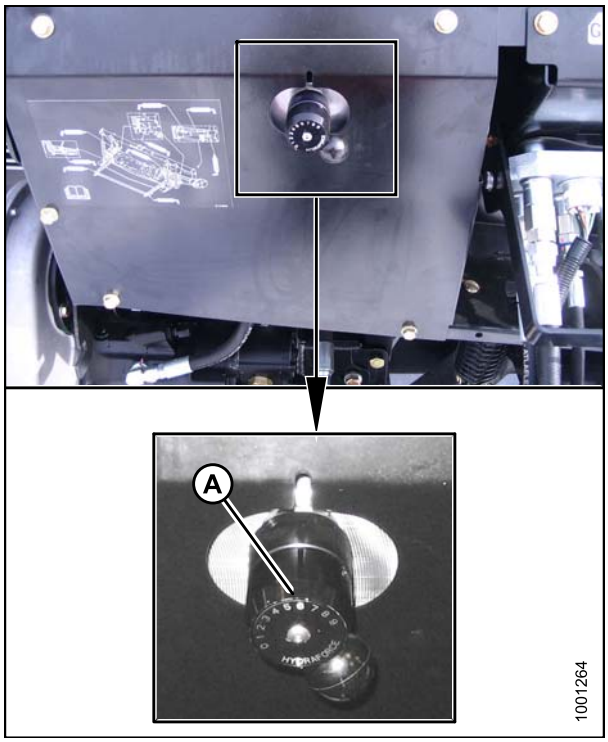


Figure 9.5: Flow Control

10 Performing Post Run-Up Adjustments

Perform post run-up check as listed on the Predelivery Checklist (yellow sheet attached to this instruction - *Predelivery Checklist, page 219*) to ensure machine is field-ready.

WARNING

Stop combineengine and remove key before making adjustments to machine. A child or even a pet could engage the drive.

Some adjustments may be necessary after the run-up. Refer to the following:

- *10.1 Adjusting Knife, page 215*
- *10.2 Adjusting Knife Speed, page 217*

10.1 Adjusting Knife

CAUTION

Stop combine engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.

1. Check guards for signs of heating during run-up due to insufficient clearance between guard and knife.
2. If heating is evident, check gap between knifehead (A) and pitman arm (B). A business card should slide easily through the gap. If not, then adjust gap by loosening bolt and tapping knifehead (A) with a hammer. Retighten bolt.

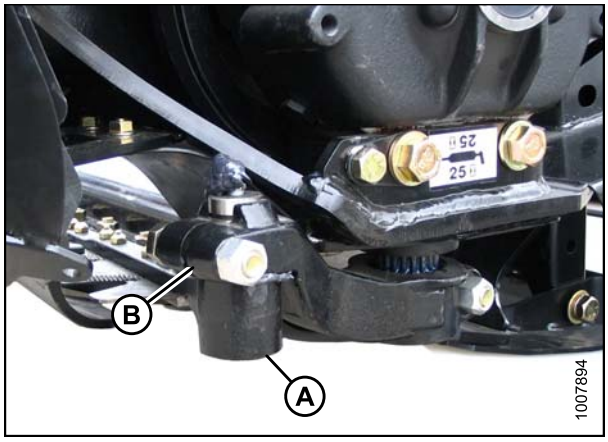


Figure 10.1: Knifehead and Pitman Arm

3. Adjust guard alignment as necessary using guard straightening tool (MD #140135). To adjust guard tips upwards, position tool as shown, and pull up.

Figure 10.2: Upward Adjustment

4. To adjust guard tips downward, position tool as shown, and push down.

Figure 10.3: Downward Adjustment

10.2 Adjusting Knife Speed

The header knife drive is driven by the adapter mounted hydraulic pump. Knife drive speed is factory-set for a feeder house speed of 575 rpm for CNH and John Deere adapters, and 780 rpm for AGCO and Lexion adapters.

IMPORTANT:

For variable speed feeder houses, this will be the **minimum** speed setting. To operate variable speed feeder house at greater than minimum speed, flow to the knife drive motor must be reduced to prevent excessive speeds which could result in premature knife failure.

WARNING

Stop combine engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.

1. Stop combine engine, and remove key from ignition.
2. To open left-hand endshield, remove lynch pin (A), and tool (B) from pin (C) at top rear of endshield.

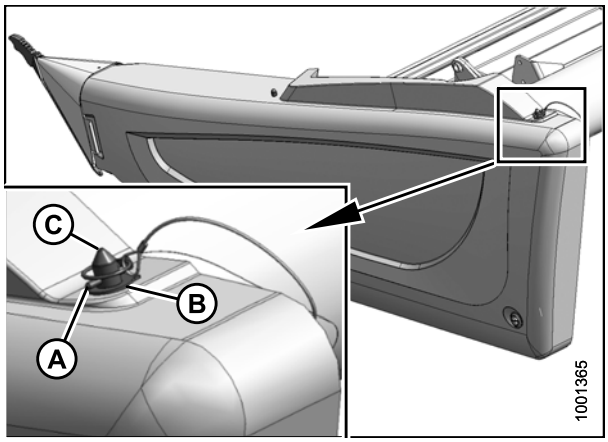


Figure 10.4: Lynch Pin and Tool

3. Use tool (B) to unlock latch (A) at lower rear corner of endshield.
4. Lift shield at aft end to clear pin.
5. Swing shield out and away from header while maintaining forward pressure to prevent shield from slipping out of tab (C) at front of endsheet.
6. Carefully disengage front of shield from tab (C), and swing front of shield away from header.

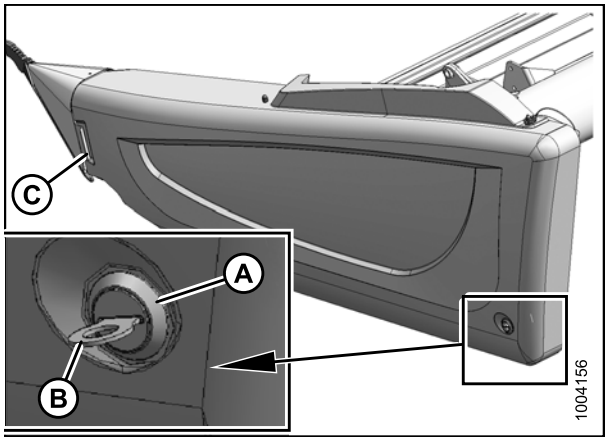


Figure 10.5: Left-Hand Endshield Latch

CAUTION

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on or close to it.

7. Start combine engine, engage header drive, and run combine at operating rpm.
8. Have someone check the rpm of knife drive box pulley using a hand held tachometer.
9. Shut down combine, and close endshield.

Figure 10.6: Knife Drive Box

10. Compare actual pulley rpm with values in the following chart:

Table 10.1 Recommended Knife Drive rpm

Header Size	Recommended Knife Drive Speed Range (rpm)	
	Single Knife	Double Knife
30 FT	550–650	—
35 FT	550–600	—
40 FT	525–600	550–650
45 FT	N/A	

11. If adjustment to knife drive box pulley rpm is necessary, contact your MacDon Dealer or refer to the header technical manual.

Predelivery Checklist

Perform these checks and adjustments prior to delivery to your Customer. **Adjustments are normally not required as the machine is factory-assembled and adjusted.** If adjustments are required, refer to the appropriate page number in this manual. The completed checklist should be retained by either the Operator or the Dealer.

CAUTION

Carefully follow the instructions given. Be alert for safety related messages that bring your attention to hazards and unsafe practices.

Header Serial Number: **Adapter Serial Number:**

Table 1 Model FD75 FlexDraper®/CA25 Combine Adapter Predelivery Checklist – North America

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check for loose hardware. Tighten to required torque.	*2 Recommended Torques, page 5*
	Check tire pressure (Transport/Stabilizer Option).	*7.1 Checking Tire Pressure: Transport and Stabilizer Wheels, page 91*
	Check wheel bolt torque (Transport/Stabilizer Option).	*7.2 Checking Wheel Bolt Torque: Transport and Stabilizer Wheels, page 92*
	Check knife drive box breather position.	*7.3 Checking Knife Drive Box, page 93*
	Check knife drive box lube level.	*7.3 Checking Knife Drive Box, page 93*
	Check adapter gearbox lube level.	*7.4 Checking Oil Level in Header Drive Gearbox, page 94*
	Check hydraulic reservoir lube level before and after run-up.	*7.5 Checking Oil Level, page 95*
	Check knife drive belt(s) tension.	*7.6 Checking and Adjusting Knife Drive Belt Tension, page 96*
	Check reel centered between header endsheets (header in full smile).	*7.7 Centering Reel, page 97*
	Grease all bearings and drivelines.	*7.13 Lubricating the Header, page 118*
	Check side draper tension.	*7.12 Adjusting Side Draper Tension, page 117*
	Check draper seal.	*7.11 Checking and Adjusting Draper Seal, page 115*
	Check wing balance.	*7.9.1 Checking Wing Balance, page 102*
	Check header main float.	*7.8 Checking and Adjusting Header Float, page 98*
	Check reel tine to cutterbar clearance.	*7.10.1 Measuring Reel Clearance, page 111*
	Check fitment of endshields.	*7.14 Checking and Adjusting Endshields, page 125*
	Check skid shoes are evenly adjusted at a setting appropriate for first crop.	—

PREDELIVERY CHECKLIST

✓	Item	Reference
	Ensure feeder house variable speed is set to minimum.	—
RUN-UP PROCEDURE		*9 Running Up Header, page 211*
	Check hydraulic hose and wiring harness routing for clearance when raising or lowering header and reel.	—
	Check lights are functional.	—
	Check knife speed.	*10.2 Adjusting Knife Speed, page 217*
	Ensure Auto Header Height is calibrated and functioning correctly.	*8.1 Auto Header Height Control, page 129*
POST RUN-UP CHECK. STOP ENGINE.		*10 Performing Post Run-Up Adjustments, page 215*
	Check knife sections for discoloration caused by misalignment of components.	*10.1 Adjusting Knife, page 215*
	Check for hydraulic leaks.	—
	Check that manual storage case contains operator's manual and parts catalogs.	*7.15 Checking Manuals, page 127*

Date Checked: **Checked by:**

MacDon Industries Ltd.
680 Moray Street
Winnipeg, Manitoba
Canada R3J 3S3
t. (204) 885-5590
f. (204) 832-7749

MacDon, Inc.
10708 N. Pomona Avenue
Kansas City, Missouri
United States 64153-1924
t. (816) 891-7313
f. (816) 891-7323

MacDon Australia Pty. Ltd.
A.C.N. 079 393 721
P.O. Box 243, Suite 3, 143 Main Street
Greensborough, Victoria, Australia 3088
t. 03 9432 9982
f. 03 9432 9972

LLC MacDon Russia Ltd.
123317 Moscow, Russia
10 Presnenskaya nab, Block C
Floor 5, Office No. 534, Regus Business Centre
t. +7 495 775 6971
f. +7 495 967 7600

CUSTOMERS
www.macdon.com

DEALERS
www.macdondealers.com

Printed in Canada